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MISCONCEPTIONS IN UROLOGY

Chairman's Address

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As the years pass and the physician practices medicine in a particular field, he cannot help acquiring not only actual knowledge, if he has the ordinary intelligence and ability to grasp ideas and is ever on the alert with his eyes and ears open but his mouth shut, but also many concepts which have a philosophic as well as a scientific background. He will learn much of the art of medicine that today, in many instances, has been relegated to an insignificant place in the life of the physician. He will and should learn much of the proper way to live with his fellow man and his colleagues in medicine. He will acquire a broadening of his perspective, a greater ability to evaluate situations and a better sense of judgment. Unfortunately, he may also develop a dogmatism which at times will only lead to a narrowing of his perspective, a lessening of his sense of values, and the committing of errors in judgment. It is impossible for a modern physician to remain confined within his own special field and yet expect to practice medicine for the greatest benefit of the patient. Drs. W. J. Mayo and C. H. Mayo years ago saw the need for travel and study; they were always ready and eager to accept new studies if they were to the patient's advantage.

THERAPY

Today there are certain conditions that urologists are called on to treat and that at times, in my opinion, are not properly treated. Misconceptions about causation, interpretation of observations and modes of treatment have led to poor results which need not have occurred if a more careful interpretation of the available data had been made. I shall mention a few of these conditions.

Infections of the Urinary Tract.—Today, in the management of infections of the urinary tract, there is danger of the carelessness engendered by overconfidence in the seemingly adequate chemotherapeutic and antibiotic compounds easily available to the urologist. Too often a prescription is written for one of the newer and more expensive compounds when a few pills of one of the old established remedies would be of equal therapeutic value and would cost only a fraction as much as the newer drug. Carroll, Herrold, Finland and others have repeatedly urged that a complete inventory of any problem of infection be made before treatment is instituted. For many years I have stressed the need of recognizing any associated pathologic entity which would tend to lessen the efficacy of one or the other of these therapeutic agents. For instance, one cannot hope to sterilize urine in the presence of calcareous obstruction or a similar lesion.

Urethral Infections.—Another group of infections which I believe have been inadequately managed are those involving the urethra in both the male and the female. Urethritis in the male many times is a result of overtreatment. Studies of the associated discharge will reveal this. In his desire to help the patient a zealous physician may, by the too frequent and perhaps unnecessary use of irritating solutions and sounds, prolong and even aggravate the condition. Inflammation of the female urethra has been treated poorly. Overtreatment is most common. The proper diagnosis has been missed many times because of failure to examine a properly obtained specimen of urine and because adequate cystoscopic evaluation with the direct-vision instrument was not done. Time and again the antibiotic agents, with their high cost and sometimes difficulties of administration, have been used with the only benefit accruing to the drug house which sold them.

Conditions Based on Neuroses.—As in any branch of medicine, the urologist will see a considerable number of patients who have complaints referable to the urinary tract but without organic basis. Such neuroses may be divided into those associated with the urinary bladder and those associated with the sexual act.

Urinary Bladder: In many instances frequency of urination, when it is not accompanied with nocturia or dysuria in any form and when results of urinalysis are essentially normal, may well have a basis in habit. Each year patients are encountered who complain of this condition and who actually have received too much local therapy as well as chemotherapy without benefit. Simple understanding of such a patient's psychological background, with a careful and detailed explanation to the patient, enlisting his cooperation in gradually making the bladder hold more urine, will relieve the complaint.

Sexual Disturbances: The greater number of neuroses in urology are related to sexual disturbances. Too often those regarded as leaders in the medical field are unwilling to take the time to sit down with these poor unfortunates and really explain why they have such a neurosis. Practically every patient who complains of sexual difficulties does so because of some functional disturbance. In many it is fatigue, mental or physical, and in a great number it has a basis in worry.

From the Section on Urology, Mayo Clinic.
Read before the Section on Urology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

Such apprehension and concern may arise from past indiscretions. Patients may be apprehensive of the future. They may be afflicted with mother-in-law trouble. These are but a few of the varied stories that all urologists from time to time can extract from such patients. In fact, one seldom fails to elicit such a story in any individual case. The only cure for these disturbances lies in a sympathetic and understanding consideration by the urologist of the condition of each patient. Sometimes it may seem wiser to turn the problem over to the psychiatrist, who undoubtedly is better trained in some of the details and analyses of such conflicts. I do not agree to such a course. I say this with all respect to my colleagues in psychiatry and mainly because many of my patients have said to me, "They tried to send me to a psychiatrist, but this trouble is not in my head; it is in my sexual organs."

Urologists should not become so concerned with the glamor of the surgical aspects of their specialty that they lose sight of the opportunities to help a definite group of persons—those who in the long run will be most grateful patients. Hormonal therapy has been of absolutely no value in this group of cases. Any benefit resulting from the administration of the androgens or the estrogens is, I am sure, purely psychic.

Enuresis: The complaint of enuresis often is presented to the urologist when he sees children and adolescents. The literature discloses that urologists are writing about a number of local lesions in the urethra and vesical neck which are held to be responsible for enuresis in these persons. Phimosis, urethral stricture, inflammation of the urethra, verumontanitis and the like all have been offered as the etiological answer to enuresis. However, if the subject is investigated from the standpoint of the psychiatrist, it will be seen that in any patient who has this condition evidence of conflicts can be found. Moreover, such an investigation might bring about the conviction that because of some psychiatric disturbance in the patient this unfortunate complication has developed. I believe that both the urologist and the psychiatrist would be definitely wrong in such an interpretation of the cause. In my experience and that of my colleagues seldom if ever has any lesion been found in the urethra to which we could attribute irritation that would cause enuresis.

As I have examined the psychiatric records of a number of patients such as these, my impression has been that the greatest conflict lies not within the child but within the parents. Invariably, the conflict that the psychiatrist describes as the "cause" of enuresis has developed after the enuresis has been present for months and even years. Each urologist should pay particular attention to the next patient who voices such a complaint. I believe the solution to the entire problem will be obtained if one question is asked: "What kind of sleeper is this patient?" Frequently the answer will be, "You could shoot a cannon off in his room and he would not wake up."

I believe these persons achieve such deep slumber that even their subconscious processes, which normally keep the muscles controlling urination in a state of contracture, are unable to provide the proper stimulus to continue this contracture. By taking some sort of mild stimulant which will diminish their deep slumber, most of these patients, in my experience, respond well and eventually correct their difficulty. I have prescribed ⅜ grain (25 mg.) of ephedrine sulfate to be taken at bedtime for one week to two weeks. Invariably this will enable the patient to remain sufficiently aware of his full bladder without actually disturbing his sleep, so that the muscles remain contracted and there will be no loss of urine. As the patient attains some confidence in himself, he gradually finds that he can hold his urine while he is asleep. The dose of ephedrine sulfate can then be taken every other night for a period of a few weeks and then less often until use of the drug is given up entirely. Such a method of therapy frequently is supplemented by the provision of a period of rest at noon so that the patient will not become too fatigued and also at times by awakening the patient at midnight and having him empty his bladder. I am certain that it is only in rare instances that any local lesion in the urethra contributes to enuresis, and I am equally certain that the conflict which the psychiatrist describes, and to which I have referred, is the result of the disease and not the cause of it.

Another condition occurring in children, specifically, recurrent infection in the male infant and small child, has been ascribed to the congenital deformity known as "posterior urethral valves." These folds of tissue, extending longitudinally from the vesical neck to the verumontanum, too often have been held accountable for recurrent infection and obstruction of urine. At the Mayo Clinic it is rare to find that such a lesion is present. Inadequate and improper chemotherapy is the usual cause of recurrent infection in such patients. If obstruction is present, it is much more likely to have been caused by contracture of the vesical neck.

ATTITUDES OF THE UROLOGIST

Within the past decade I have noticed two particular instances of what seems to me a most selfish attitude on the part of the persons concerned. Many urologists are actively engaged in teaching programs for the undergraduate and the graduate student in urology. No one would deny that he is pleased to occupy a position of guidance in medical education. In such a relationship, however, the student necessarily must be content with a subordinate position, as has been true from ancient times. In the instances to which I have referred, two well-known practitioners were concerned. They were outstanding men, who had contributed importantly to their specialty as well as to organized medicine. However, when the time came for the entry of other young practitioners into their communities, they employed what must be called reprehensible measures in an attempt to keep out these younger men. Why is this? Are they so unsure of themselves that they fear fair and ethical competition? If such be the case, their communities certainly need the new men.

Many times the giving of proper help and encouragement to a young man just starting out may and usually will lead to a relationship advantageous to both parties concerned. There should be much satisfaction to the older man as he reaches retirement if he can point to someone who is doing well, about whom he can say, "I helped train him and assisted him when I could as he started his practice."

The final misconception which I should like to mention concerns an ever growing attitude on the part of the graduate student in urology toward what in his opinion constitutes the practice of urology. In the past ten years there has been a noticeable change in this attitude. The change has been for the worse, in my

belief. Today, to use the words of Dr. N. G. Alcock of Iowa City, an outstanding urologic teacher, "they are knife-happy." These graduate students seem to have little interest in such trivial measures as passing a catheter without hurting the patient or introducing infection. Their attitude is that anyone can pass a sound or a cystoscope, that transurethral procedures are relatively easy and that their use can be learned at will during the period of surgical training. Deliver me from such misapprehensions.

Why is such an attitude so prevalent today? It can be noticed virtually everywhere. Many of my friends scattered the country over have told me they are encountering the same thing. The answer, I believe, is obvious. In respect to training for specialty recognition, qualification for membership in societies, and presentations at meetings, the surgical aspects of urology have seemed to be stressed preponderantly. I would be the first to extol proficiency in urologic surgery, but at the same time I certainly cannot agree that it holds the supreme position some of my colleagues would lead me to think it should have. The art of medicine is far too profound and complex to be symbolized simply by the act of holding a scalpel. A urologist must be trained in all the phases of the specialty: diagnosis, instrumentation, various types of local therapy and surgery, both closed and open.

OPHTHALMOLOGY AT THE MIDCENTURY

Chairman's Address

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As we come to the halfway point of the twentieth century, it is appropriate to consider, in long range terms, the trends in ophthalmology during the last half-century and the scientific, socialistic and economic changes that are determining its future. The last 50 years have been characterized by tremendous progress in the basic sciences, in the development of medical research, the organization of teaching facilities and in the availability and utilization of these accomplishments by virtue of superior transportation and communication. In ophthalmology, the development of the ophthalmoscope and the slit lamp and the progress made in physiology have enabled the clinician to correlate his observations with the microscopic changes in diseases affecting the eye and have been largely responsible for the great advances made during this time.

INFLUENCE OF BASIC SCIENCE

More and more, a direct application of the basic sciences, such as physics, biochemistry, bacteriology and pathology, will be made in diagnosis and treatment. An example of such an application is the clearing of corneal edema by the instillation of glycerin, a phenomenon arising from knowledge of semipermeable characteristics of the endothelium and epithelium. Phillips Thygeson has correlated the clinical signs of many external diseases with the bacteriologic flora of the conjunctiva and cornea and with their histopathology. His technics, originally thought by many to be impractical, have proved to be office procedures easy to perform and extremely applicable to the immediate treatment of the patient. These are but two of many direct relations between basic science and ophthalmology.

In like manner a close alliance is occurring between ours and other medical specialties. Indeed, it becomes apparent that in this age of specialization, when ophthalmology itself is evolving into subspecialties of medical ophthalmology, neuro-ophthalmology, ophthalmic surgery and ophthalmic pathology, the traditional distinctions among these branches become indefinite. It has become as important for the ophthalmologist to understand cell metabolism and body fluid physiology as it is for the internist to understand them. This dependence on fundamental knowledge and its application and the increasing interrelation between the various branches of medicine fosters specialization to a degree far greater than practiced today. It becomes apparent that ophthalmology encompasses a field so large that one person cannot hope to cover it, which suggests that in the future specialization will increase. There will probably be more emphasis on and attention paid to group practice, each man within the group having his particular interests and talents, all of which will be necessary to best care for the patient's needs.

SOCIALIZED MEDICINE

Such specialization and accomplishments are best fostered by a social system of free enterprise. For advancement in any field, there must be strong and able persons or groups competing with each other, yet with such an interchange of ideas that they are all operating effectively, to each other's advantage. Any one organization, whether that organization be a government organization or a research institute, must never be allowed to dominate the research or other activities of these persons or groups.

The scientific, critical mind must have unhampered opportunity for free expression and exchange of ideas in order to produce the greatest intellectual wealth. Such opportunities are not available under the domination of a remote socialistic bureaucracy. The intimate and confidential relation between physician and patient must be encouraged and preserved, whereas under the socialistic program this relation is severed, and the professional responsibility becomes nebulous, advice unspecific and skill more or less disinterested. Commercialism enters the door while true professionalism seeks the exit.

We may divert the trend away from socialism by encouraging voluntary health insurance, wherein the patient realizes that there are obligations as well as benefits and thereby does not lose control of his personal welfare. We may divert it by strengthening the laws that provide government aid to that small proportion of the population who cannot afford to pay medical bills or insurance premiums, but our influence will not be heeded unless the sick have confidence in the physician they choose and look to him as their sympathetic adviser and wise professional counselor. Your attitude toward every patient you see, in your office, in his home or in the hospital, is influencing the trend and determining the ultimate outcome. If yours is an attitude of concern only for the welfare of the patient, there will never be a system of socialized medicine in this country. The absolute attainment of this attitude, like religion, is not acquired without effort. It must be ever taught, practiced and publicized.

Read before the Section on Ophthalmology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

Because of the tremendous increase in the population of the United States and the fact that the span of life has been lengthened 20 years in the last few decades, the blind program has become one of great economic concern to us all. According to the National Association for Prevention of Blindness, there are approximately 280,000 blind men and women and children in the United States. This burden to the taxpayers, during the past decade (in this state alone), is approximately $40,000,000. The federal government in 1948-1949 paid over $40,000,000 in aid to the blind. In the animal kingdom blindness means death; in the human race blindness means dependence, and dependence means burden economically and spiritually. A great deal has been accomplished in the rehabilitation program in the few states in which it has been established. In five states where some sort of rehabilitation organization has been instituted, noteworthy progress has been made in the last few years. In these five states about 3,000 blind had sufficient vision restored through surgical intervention and medicine to be removed from the blind aid category.

In this state $85 a month is paid to the blind. In several other states it is much less, but it will average at least $50 per month per person. If we consider an average of $50, approximately $2,000,000 yearly has been saved to the taxpayer by rehabilitation of the blind. How much could be accomplished if these savings through restoration of vision could be allotted to research associations and institutions for the prevention of blindness and the treatment of the blind. Less than $1,000,000 a year is spent in the universities and laboratories in the United States for eye research.

CONCLUSION

If all members of this association could become more vitally interested in the programs of the blind in all the states, the accomplishments would be astounding. During the past 50 years we have seen greater achievements than were accomplished under a few great leaders in the previous century. During these last 50 years, many more great leaders have undoubtedly left their footprints in the field of progress. I foresee from among this great organization many younger ophthalmologists who will carry on our great work and leave a lasting imprint of still greater and more far reaching accomplishments in the conservation, improvement and restoration of human eyesight.

9730 Wilshire Boulevard.

Rays Beyond 70,000 Feet Altitude.—A new component has been discovered in these regions, the heavy nuclei rays. They have a relatively small penetrating power and do not occur therefore below 70,000 feet. They consist of atomic nuclei of higher atomic numbers which are stripped of all their orbital electrons. They carry the tremendous amount of kinetic energy of more than 2 billion electron-volts per atomic number. Their specific ionization is much higher than any other hitherto observed value. The mechanism of absorption in matter is of the same type as that of alpha particles but magnified by a factor of 1,000. Their range in living tissue reaches values of 10 centimeters in comparison of 50 microns for alpha particles. An estimation of their possible biological action indicates that they might represent a serious hazard to health.—Hermann J. Schaefer, Evaluation of Present-Day Knowledge of Cosmic Radiation at Extreme Altitude in Terms of the Hazard to Health, *The Journal of Aviation Medicine*, October 1950.

RADIOACTIVE DIIODOFLUORESCEIN IN DIAGNOSIS AND LOCALIZATION OF CENTRAL NERVOUS SYSTEM TUMORS

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Radioactive diiodofluorescein has been utilized in the study of 200 patients with the diagnosis of a space-occupying lesion of the central nervous system. We have correlated our observations with the preoperative clinical diagnosis, electroencephalography, pneumography, angiography and surgical and autopsy observations. We have made postoperative and postirradiation tests and, finally, we have correlated all these studies with the histopathological characteristics of the tumors. The results indicate that this radioactive isotope dye test is a valuable diagnostic adjunct in neurosurgical problems not only because of its high degree of accuracy in determining the presence of brain tumors but also because of its relatively precise focal localization. The possibility of prognosticating in a general fashion the relative degree of cellularity and vascularity of the tumor also appears to be feasible.

Fluorescein was believed to have a special affinity for tumor cells as early as 1911, at which time Wasserman, Keysser and Wasserman [1] used tetrabromofluorescein (eosin) as a vehicle to carry toxic selenium to the tumor for chemotherapeutic purposes. In 1929 Copeman, Coke and Gouldesborough [2] and in 1931 Copeman [3] used sodium fluorescein, both topically and intravenously, in conjunction with high voltage roentgen therapy or radium, in the study and treatment of tumors of the breast and bone. However, fluorescein was used primarily in the study of capillary permeability in diseases of the central nervous system, in the study of the blood–aqueous humor barrier and in circulation time studies.[4] Experimental studies with other vital dyes

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From the Department of Surgery, Northwestern University Medical School, and the Veterans Administration Hospital Radioisotope Unit.

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on neoplastic growths in lower animals, by Ludford,[5] by Duran-Reynals [6] and by Hess [7] seem to indicate that foreign dyes localize selectively in cancer tissue, not in the cancer cell itself but in the intercellular stroma, probably as a result of the altered permeability of the stromal blood vessels. Boyland and McClean [8] and Duran-Reynals stated that this abnormally high permeability leading to the escape of dye may be increased by the "spreading factor" of cancer. The latter author also noted that localization of dye in tumor tissue takes place rapidly, within one-half hour after intravenous administration and mainly in the active nonnecrotic portion of the tumor.

Stevens and his colleagues [9] studied the distribution of radioactive iodinated trypan blue and other dye preparations in tumor-bearing mice and noted that tumor tissue showed concentration of radioactivity several times higher than skeletal muscle or skin but much lower than the liver, spleen and kidneys. We also have noted the intense relative concentration over the liver, spleen, kidneys, lungs and thyroid, which may be the result of their reticuloendothelial tissue content and relatively high degree of vascularization. Broman [10] studied vascular permeability in man by supravital staining with trypan blue and noted that the blood vessels of brain tumors lack the special permeability function of the blood-brain barrier. Zahl and Waters [11] studied the localization of acid dyes, other than fluorescein, in animal tumors and reached the conclusion that the dye seems to localize selectively in neoplastic foci, dependent on a factor associated with a local increase in capillary permeability to the dye. They noted that Evans blue accumulates much more heavily in, and is retained longer by, malignant tumors and metastases than benign tumors. They also emphasized that acid dyes localized not in the tumor cells but in the surrounding stroma, and that later they appear within the macrophages about the edge of the tumor and in the reticuloendothelial system of the liver and spleen.

A recent experimental study by Shapiro and Landing [12] on the significance of the distribution of fluorescein in SA 180 mouse tumors revealed that in 12 minutes there was a uniform, well defined fluorescence in the tumor, with concentration diminishing to zero in the other animal tissues except those which are the normal routes of excretion for the dye . At time intervals after two to three hours fluorescence was observed predominantly in the areas of necrosis. We might expect a glioblastoma or metastatic carcinoma to retain fluorescein longer in its necrotic areas and thus yield relatively high differential counts even at the third and fourth hours. This has been noted in our radiodye localization studies. In 1940 Gifford [4b] demonstrated that fluorescein is an acid-diffusible dye, about 40 per cent of which is bound to blood proteins and is not diffusible, unless the permeability of the capillaries is altered. The other 60 per cent is found in the body fluids in direct proportion to its concentration in the blood. It is rapidly excreted by the kidney and by the salivary and sweat glands. It was not until 1947 and later that Moore and associates [13] first used fluorescein as an agent in the differentiation of normal and neoplastic human tissues. In an initial report on 15 patients [14] he demonstrated the clinical usefulness of the I^{131}-labeled fluorescein in the diagnosis and localization of brain tumors. Tabern [15] developed a method for the production of stable diiodofluorescein that contained no free I^{131} or other iodinated fluorescein compounds.

TECHNIC

Stable radioactive diiodofluorescein is dispensed in a sterile 8 to 10 per cent solution, the specific gravity of which is approximately 1.5 times 10^{-5} per cent. Approximately 1.1 millicuries of the radioactive dye is injected intravenously, using appropriate radioisotopic precautions to prevent contamination

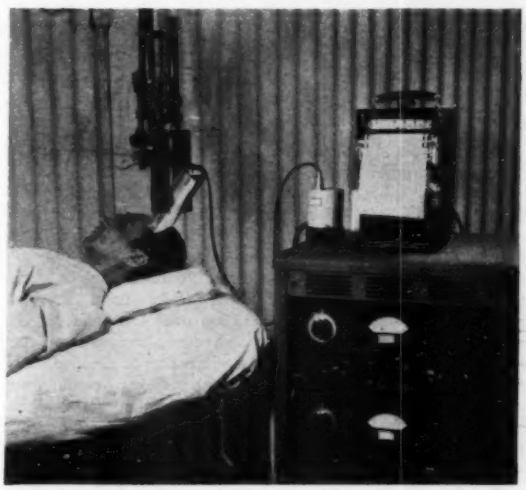

Fig. 1.—The shielded TGG 2 Geiger tube is connected through an amplifier to a General Radio Counting Rate Meter, and the counts per minute are recorded on an Esterline-Angus milliammeter. Note that the tube is maintained "normal" to the skull in this left superior precentral or frontal area (LF_3) position. Readings are at least of three minutes' duration over each site, and the most significant counting rates occur within ½ to 2 hours after the intravenous administration of 1.1 millicuries of radioactive diiodofluorescein.

of the skin of the patient and operator. The uptake in the brain is then determined by external counting with the aid of a single channel differential radiation localizer. This radiation detection equipment consists of four major components (fig. 1):

1. A mica window Tracerlab TCG 2 Geiger-Mueller tube with a 250 mg/cm.^{2} aluminum cap which effectively eliminates most of the I^{131} beta radiations. The tube-sensitive diameter is 2.5 cm.

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2. A lead shield with a thickness of 1.2 cm. This shield, in which the tube is mounted, extends 1.5 cm. beyond the end of the Geiger tube providing for a wide geometry. Maximum flexibility is achieved by attaching the shield and the tube to a 360 degree yoke and swivel, or similar device, which in turn is set on a wall-mounted dental x-ray tube arm.

3. A modified General Radio Counting Rate Meter, with a 1,000 count per minute full scale range, connected to the tube through a preamplifier.

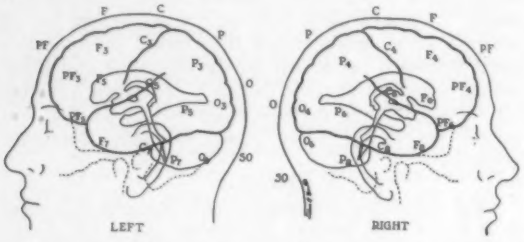

Fig. 2.—Note the 32 different positions surveyed with the Geiger tube, which covers every area of the skull on and above Reid's base line. These include 13 positions on each side of the skull, 2 prefrontal (PF), 3 frontal (F), 3 central (C), 3 parietal (P) and 2 occipital (O), besides 6 midline positions. It is essential that at least all these areas be checked within the significant ½ to 2½ hour time interval following the radiofluorescein administration, because readings after three to four hours are only confirmatory.

4. A mechanical graphic recorder (the standard Esterline-Angus milliammeter) with a recording speed of 6 minutes per inch.

As seen from the pictorial chart (fig. 2), the survey covers at least 32 different positions on the scalp, including 13 areas symmetrically studied on each side of the skull, alternating from left to right, and 6 midline positions. In this fashion every inch of the skull on and above Reid's base line is surveyed with the counter. The Geiger-Mueller tube is placed directly on the scalp and is maintained "normal" to the skull, that is, at right angles to the tangent at the particular position under study. Readings are at least of three minutes' duration over each site and are repeated over abnormal areas at frequent intervals of time from 20 minutes to four hours after injection of the dye. The counts per minute are visually displayed and continuously recorded on the Esterline-Angus tracing, so that the abnormal concentrations can readily be diagrammatically transposed and recorded on the pictorial chart.

Within a minute or two after the injection of the dye, the radioactivity at the surface of the head is at a maximum. This decreases rapidly over the next 10 to 30 minutes, until a plateau

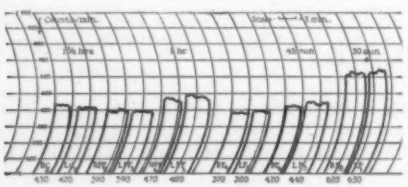

Fig. 3.—The normal radioactive diiodofluorescein concentrations in counts per minutes on an Esterline-Angus tracing, at time intervals from 40 minutes to 1¼ hours after the intravenous administration of 1.1 millicuries of the dye. Note that symmetric areas on each side of the skull are studied as simultaneously as possible within three to five minutes after a "plateau" is reached. Note that in a normal patient the variations over symmetric sites are from 0 to 40 counts per minute and that those over adjacent areas have a characteristic normal variation as well. Compare mid PF to mid F, mid C and mid P, or compare the left parasagittal frontal area to the left anterior temporal lobe (LF_3 to LF_7). Most of the non-space-occupying intracranial lesions fall within just such a range and include hypertensive cerebrovascular accidents, cerebral thrombosis, meningovascular syphilis, chronic arachnoiditis or ruptured cerebral aneurysm.

is observed. After this interval, and for the next 1 to 2 hours, the decline in counts is gradual, so that symmetric positions can be accurately studied, if care is taken in properly matching areas on each side of the skull within 3 to 5 minutes. The most significant counting rates occur within ½ to 2 hours after the administration of the radiodye; hence, suspected areas of involvement not only must be rechecked several times during this period, but also must be compared to the concentrations in adjacent areas, in order to delineate not only the main focus of the lesion but also its extent. The counting rates during this pertinent period, using the equipment described, is of the order of magnitude of 200 to 1,200 counts per minute.

It is essential to count at least all 32 sites, but, since there is only a limited significant time interval of about two hours, the order of the performance of the counting should vary so that the suspected areas are measured at least two to three times for greater accuracy. At the end of three to four hours the readings are only confirmatory, for the differential concentrations are no longer striking.

INTERPRETATION OF RESULTS

A range of normal concentrations has been determined for each position at various time intervals (figs. 3 and 4). If the observed concentration at all sites is greater than the upper range of normal by 100 to 600 counts per minute then a tumor should be suspected. For localization of this tumor, comparisons are then made with the symmetric position on the opposite side of the skull and also with positions adjacent to the area under suspicion. In the normal subject, the counts made over symmetric sites vary from 0 to 40 counts per minute. Hence, 50 counts per minute is arbitrarily

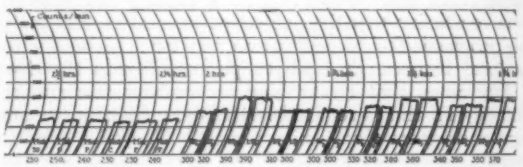

Fig. 4.—Continuation of the tracing shown in figure 3 at 1¼ to 2½ hours after the intravenous administration of 1.1 millicuries of the dye.

considered to be the lowest level of significance. The standard statistical error at rates of 500 and 1,000 counts per minute is 20 and 30 counts per minute, respectively. Therefore variations of more than 10 to 15 per cent are significant. It should be noted that the over-all increase of radioactivity in patients with verified brain tumors may be such that the count over the tumor itself may be 50 to 100 per cent greater than the count over the same site in a normal brain at a comparable time interval.

From figures 3 and 4, which show normal values, it can be seen that adjacent sites have characteristic variations. The readings at the midparietal and midsuboccipital positions are 230 and 260 counts per minute, respectively, with a difference of 30. In a patient with a verified tumor in the midsuboccipital area (figs. 5 and 6), there were readings of 590 and 810, respectively, with a difference of 220, which is seven times the normal difference in these adjacent midline areas. Likewise, the concentration of the dye over the site of the suspected tumor was 810 counts per minute, whereas the highest range of concentration in normal patients at the same site and for the same interval of time is only 250 counts per minute. The difference between these is 560, which is at least 10 times higher than our accepted difference of 50 counts per minute in normal persons. Differences of this magnitude are striking and are never seen in any but tumor patients.

Use of this method of comparison with the normal values, and with symmetric and adjacent area values for a pertinent time interval, has improved the reliability of our results and has made possible the diagnosis of midline and posterior fossa tumors.

RADIOLOGICAL HAZARD

Studies of the distribution and excretion of radioactive diiodofluorescein have been made in human beings, dogs and rats. The biologic half-life in man is

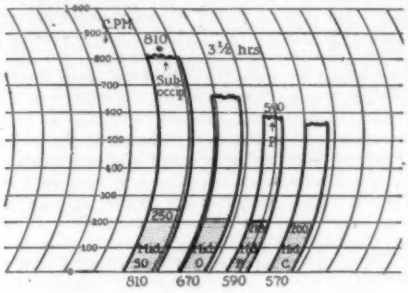

Fig. 5.—Patient D. C. clinically showed signs and symptoms of a right parietal lobe neoplasm. Ventriculography was equivocal, demonstrating only mildly enlarged lateral ventricles. The radioactive fluorescein study revealed a high tumor concentration especially in the posterior fossa and upper part of the cervical cord. At surgical intervention, a vascular mixed cell astrocytoma was partially removed from this site. Note that 3½ hours after administration of the radiodye the concentration in the middle posterior fossa or midsuboccipital (SO) area is 810 counts per minute, which is 220 counts per minute more than the adjacent midparietal area (P = 590), a difference seven times the expected normal variation of 30 counts per minute at this period of time. Also note that the total concentration of 810 is 560 above the highest normal value of 250 (see shaded area) ever noted for the midsuboccipital area at 3½ hours. These readings are highly significant of a vascular and cellular tumor.

two to three days. The highest concentration after the initial maximum occurs in the thyroid gland, and the dose of radiation delivered to this tissue is from 1.9 to 3.8 roentgen equivalents. This dose of radiation is substantially less than that received by patients tested with 50 microcurie doses of radioiodine in studies of thyroid function. The other tissues of the body retain considerably smaller amounts of the radiodye, and in none of the dogs was significant radioactivity detectable seven days after the administration of 25 microcuries per kilogram, or twice the usual dose in human subjects. We believe that there is no significant hazard to the patient from the use of diiodofluorescein in amounts of 1.0 to 2.0 millicuries.

CLINICAL EXPERIENCES

There were 95 histologically verified space-occupying lesions of the central nervous system; 40 of these were gliomas, 13 were meningiomas and 13 were metastatic carcinomas and sarcomas. The remaining 29 included 6 tumors of the spinal cord, 7 tumors of the hypophysis, 2 hemangioblastomas of the cerebellum, 1 acoustic neurinoma, 1 melanoblastoma, 3 unclassified intracranial tumors, 4 subdural hematomas, 2 cerebral abscesses, 1 porencephalic cyst, 1 arteriovenous fistula and 1 granulomatous cyst. In these 95 patients, 86 (91 per cent) lesions were accurately diagnosed as organic and localized with radioactive fluorescein, while only 4 diagnoses were completely inaccurate. The other 5 were inaccurate only so far as the nature of the lesion was concerned but were accurate in respect to localization of the lesion. Thirty-eight of the 40 gliomas studied were accurately diagnosed, and these included 20 glioblastomas, 16 astrocytomas, 3 oligodendrogliomas and 1 ependymoma. The 2 gliomas diagnosed inaccurately were in the cerebellum, and each was composed of a large, single cyst. By radioactive assays we have shown that the liquid contents of such cysts contain even less radiodye than the normal brain.

Besides these 95 microscopically verified space-occupying lesions, there were 15 grossly verified presumptive gliomas which were surgically treated and proved to be inoperable and are, at this time, microscopically unverified. All these lesions were accurately diagnosed and localized with the radiodye test. These included lesions of 10 patients with brain stem tumors, 5 of whom had ventriculocysternostomy performed and 5 deeply-seated temporal lobe tumors close to the midline.

Of the total of 110 microscopically and grossly verified space-occupying lesions, 101 (92 per cent) were accurately diagnosed and localized by means of the radioactive isotope tracer test. This exceeds by far the accuracy of all other neurosurgical tests or procedures, particularly with regard to localization. Added to this group of 101 are 18 patients with presumptive space-occupying lesions in whom this method corroborated the clinical and roentgenologic diagnoses. Lesions of these patients await surgical verification and/or further observation. The remaining 72 of the 200 tumor-suspect patients were thought not to have a space-occupying lesion by this test, and this diagnosis was supported by surgical exposure in 13 instances, air studies in 54 instances and/or angiography in 5 instances. Of these, only 1 yielded a positive dye concentration in the absence of tumor.

Clinically, this patient had the typical signs and symptoms of a cerebellar pontine angle tumor. The radiodye test also localized the tumor in this region. However, suboccipital craniectomy revealed no tumor but only a mass of dilated blood vessels and fibrous tissue, which was considered to represent a chronic infectious process. These pathological changes were the cause of the clinical signs and symptoms, and the abnormal blood vessels were probably responsible for the slight but persistent uptake of radioactive fluorescein.

In all 200 cases there were only nine proved inaccuracies, making a total accuracy of 95.5 per cent for the radioactive diiodofluorescein test. Eight of the

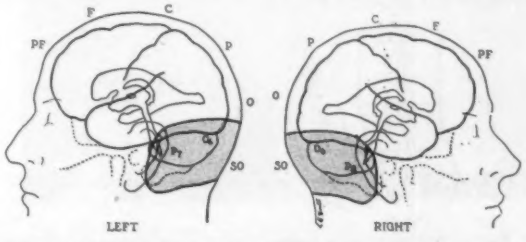

Fig. 6.—Pictorial chart used for recording the graphic record seen in figure 5, in which the abnormal concentrations are diagrammatically transposed and recorded.

nine were intracranial lesions, and all but one were also inaccurately diagnosed by clinical examination, electroencephalography and pneumography. The first patient has been discussed in the preceding paragraph.

The second of these patients had clinical signs pointing to a left frontal lobe tumor extending in butterfly fashion across the corpus callosum. The radiodye concentration was slight but persistent in the right temporal lobe. The patient was scheduled for a large left frontotemporal craniotomy, but before

surgical intervention could be performed the patient expired suddenly during a bout of coughing. Autopsy revealed an astrocytomatous cerebellar cyst without a mural nodule and with no evidence of any lesion in either cerebral hemisphere.

The third patient had clinical, roentgenologic and radiodye evidence of a lesion in the right hemisphere consistent with a diagnosis of subdural hematoma. At surgical intervention an encapsulated hemorrhagic mass was removed at the site indicated

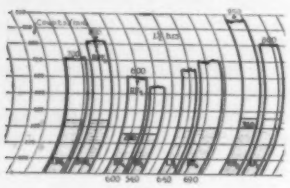

Fig. 7

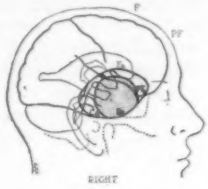

Fig. 8

Fig. 7.—A portion of the actual tracing 1½ hours after the intravenous injection of 1.1 millicuries of radiodye. The significant value, 950 counts per minute, is marked by an asterisk and was obtained over position RF_5 (right middle cranial fossa, on Reid's base line). The highest value found in a normal patient in this position at this particular interval of time is shown by the shaded portion, i. e., 360 counts per minute. Over the symmetric site on the opposite side of the skull (LF_7) there were 800 counts per minute. The right posterior inferior frontal area (RPF_6) registered 820 counts per minute as against only 700 over the same symmetric area on the opposite side (LPF_8). Also note that the adjacent sites RF_8 (950 counts per minute) and RF_4 (600 counts per minute) at the base and vertex respectively, of the right middle cranial fossa, show a wide difference of 350 as compared to a normal difference of 100 over the same sites in a normal patient. The tracing therefore indicates a lesion, deep in the middle fossa, which is relatively highly vascular and cellular.

Fig. 8.—Pictorial chart of the graphic record in figure 7, showing the lesion at the base of the middle fossa on the right (RF_8), extending anteroinferiorly to area RPF_6.

by the radiodye test. Microscopic examination revealed a metastatic hypernephroma with extensive cyst and hematoma formation, which no doubt accounted for the diminished concentration of radiodye. Later, a fluorescein restudy revealed an extensive lesion, typical of metastatic carcinoma, whose plotted extent coincided accurately with the actual size and extent of the tumor in the right temporal lobe, as proved at autopsy.

The fourth patient appeared to have, clinically, roentgenologically and by radiodye studies, a lesion in the right parietotemporal area. However, when surgical operation was performed a small, well encapsulated subdural hematoma was discovered, exactly occupying the site designated. On microscopic examination, the capsule was found to be exceedingly thick and to

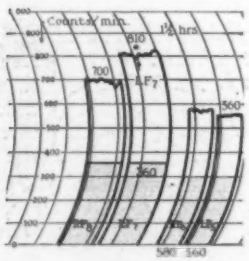

Fig. 9

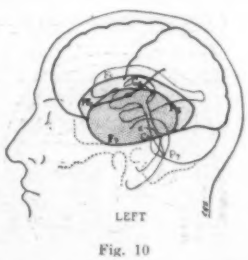

Fig. 10

Fig. 9.—A portion of the graphic tracing at the site of an extensive glioblastoma multiforme in the left temporal lobe, proved both at surgery and later at autopsy to be accurate in its focal localization. The radiodye concentration at LF_7 is 810 counts per minute 1½ hours after administration, as compared to 700 at RF_8, the same basilar position on the opposite side, a difference of 110 counts per minute. The shaded portion again represents the highest range of normal for this position (360 counts per minute). The difference of 450 counts per minute is striking, and is highly significant of tumor. Note that the adjacent positions LF_8 (580) and RF_6 (560) show 200 counts per minute less than the tumor area LF_7 (810) and differ only 20 counts per minute from one another.

Fig. 10.—Pictorial representation of the graphic tracing seen in figure 9, showing the actual extent of the large tumor in the left temporal lobe, which was verified surgically and at autopsy as a glioblastoma multiforme.

contain a great many newly formed capillaries. The latter probably accounted for the relative increase of radiodye in this area.

The fifth patient had generalized Hodgkin's disease with vague clinical involvement of the spinal cord and with a myelographic block at the seventh dorsal vertebra. Laminectomy revealed an extensive extradural tumor at that level. The radiofluorescein concentration appeared to be more intense in the lumbar and sacral areas, and this corresponded to the involvement of mesenteric and paraaortic nodes, which had recently been treated with high voltage roentgen radiation. The diagnosis of tumor was correct, therefore, but the localization was accurate only for the abdominal area of the spine and not for the thoracic spinal involvement.

The sixth patient was struck on the head a week previous to examination but had no period of unconsciousness. His only complaint was headache. He had no other symptoms or signs except a questionable right facial weakness. Pneumoencephalography revealed an equivocal shift of the ventricles to the left. The radiodye concentrations were persistently high in the middle cranial fossa, slightly greater on the right than on the left, and were consistent with a diagnosis of tumor in the temporal lobe area. Surgical intervention revealed bilateral subdural hematomas in the middle fossa. Hence, it is possible that in this case of recent trauma, with its associated disturbance in cerebral capillaries, there was an increased exudation of radioactive fluorescein, accounting for the high counts seen in this patient. As we learned later, repeated studies in recent post-traumatic cerebral lesions reveal a decreased dye concentration within seven to 10 days, in contrast to neoplastic lesions, which show

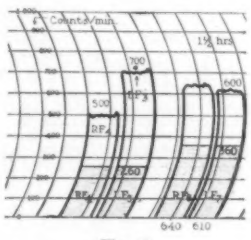

Fig. 11

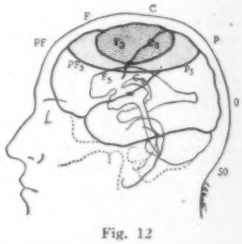

Fig. 12

Fig. 11.—The site of the highest radiodye concentration is the LF_8, or left parasagittal precentral area, where the counts per minute are 700 as compared to 500 on the right side, RF_4. Normally, a difference of only 40 counts per minute exists. The adjacent basilar site is usually 100 counts per minute higher at this period of time (1½ hours); however, in this instance the parasagittal vertex reading is 90 counts higher than LF_7 (610), showing a complete reversal from the normal dye concentrations.

Fig. 12.—Pictorial chart corresponding to figure 11. This space-occupying lesion was accurately outlined by the radiodye concentrations and proved at surgery to be a meningioma. The shaded area represented that portion of the tumor which was superficial. The remainder of the outlined area was occupied by the meningioma which was present beneath the cortex.

the same or an increased concentration. We believe that, in future patients in whom trauma is an etiological factor, we will be able to avoid such errors by repeating the radiodye test.

The seventh patient, a man aged 41, had had a pneumonectomy performed three weeks previously for the removal of a verified bronchogenic carcinoma. His only complaint was two generalized seizures four days before admission. The neurological examination revealed completely normal conditions as did the spinal fluid studies. The radiodye concentrations were at the upper limits of normal without pertinent localizing signs. However, pneumography showed a definite shift of the left lateral ventricle to the right with a large defect in the left posterior temporal lobe. Craniotomy revealed a well encapsulated, firm tumor nodule which was the size of a walnut. Several weeks later autopsy revealed that the entire left temporal lobe was occupied by a decidedly necrotic, centrally cystic, metastatic carcinoma. Even the thin peripheral rim of tumor tissue showed evidence of severe liquefaction necrosis. This tends to corroborate further that it is only the actively growing tumor which concentrates the radiodye, since the cystic portions actually have a diminished uptake.

The last two of these nine patients demonstrated this feature most completely. Both had cystic tumors of the posterior fossa; one was a tremendous cyst with a

small astrocytomatous mural nodule, and the other was a nonspecific granulomatous cyst with a thickened, white, avascular capsule. In both of these instances the radiodye concentrations were even lower than those for the adjacent normal brain tissue. When the preponderance of cyst fluid over tumor cells and tumor capillaries is too great, the radiodye concentrations are

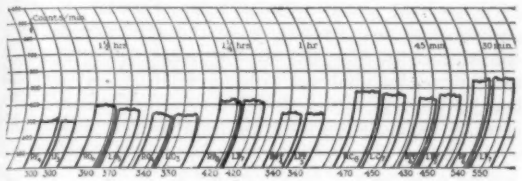

Fig. 13.—Normal tracing obtained in L. J., a patient aged 25 with clinical symptoms and signs of a neoplasm in the right frontal lobe. The radiodye concentration counts were within normal limits from ½ to 2½ hours after injection of the dye. This tracing made in the ½ to 1¼ hour interval did not support the diagnosis of a space-occupying lesion in the right frontal lobe.

not significantly increased even though a small tumor nodule may coexist with the large cyst. However, in the greater number of instances, even in the multicystic, relatively avascular astrocytomas, there is usually a sufficient number of neoplastic cells and capillaries to result in a recordable, pertinent, differentiating radiodye concentration. In only one instance did a simple cyst reveal its presence by a slight focal concentration of radiodye. This was in a patient with a traumatic porencephalic cyst in which the differential concentration was quite definite but at the lowest level of significance. Added to this was the fact that the record was taken 5 days after pneumoencephalography was performed; the latter in itself will cause a slight generalized increase in radiodye concentration, probably the result of the irritative effect of residual intraventricular oxygen on the adjacent cerebral capillaries.

RELATIONSHIP OF THE RADIODYE CONCENTRATION TO THE HISTOPATHOLOGY OF CENTRAL NERVOUS SYSTEM TUMORS

There appeared to be a definite gradation of differential counts per minute over symmetric areas of the skull, as also when contrasted with the normal values at the same interval of time, and this was related not only to the degree of malignancy of the tumor but even more so to its angioarchitectural pattern and its degree of anaplasia. Metastatic carcinomas and sarcomas (figs. 7 and 8) gave counts in the highest differential range. Next were the glioblastomas (figs. 9 and 10), in which the concentration of radiodye appeared to be definitely related to the degree of endothelial or adventitial proliferation of the capillaries and to the disturbed permeability of their endothelial cells. For example, the angioproliferative glioblastomas [16] showed a lower range of counts per minute difference between symmetric areas of the skull than did the angiothrombotic types. Next in the differential range were the vascular and cellular meningiomas (figs. 11 and 12), with the more fibrous hyalinized types giving lesser degrees of radiodye concentration. The patients with astrocytoma and oligodendroglioma showed the lowest differential count of all the tumors. This appeared to coincide directly with the relative microscopic scarcity of capillaries in these tumors. However, recurrent gliomas had a much greater uptake of dye, and this was consistent with their increased cellularity and vascularity.

At the base of the scale of radiodye concentration were the chronic subdural hematomas and the extensively cystic tumors. It was noted that in the acute stage of a hemorrhage the concentration over the focal site never reached the heights seen in tumors; if the radiodye test was repeated within two to three weeks, the concentrations were as normal as in the chronic hematomas. Undoubtedly, the cerebral edema and disturbed vascularity in the acute stage accounted for the temporary increase of radiodye. In tumor patients, on the contrary, repeat studies revealed an increase instead of a decrease in dye concentration.

Three instances of subarachnoid hemorrhage secondary to a ruptured intracranial aneurysm showed normal readings. Because of the presence of papilledema these patients were clinically considered to be tumor suspects. One of these (figs. 13 and 14) even had a craniotomy performed because electroencephalography, ventriculography and angiography all pointed to a space-occupying lesion in the right frontal lobe. However, operation revealed an aneurysm of the anterior cerebral artery, visualized on the floor of the anterior cranial fossa, as well as multiple areas of old intracerebral hemorrhagic softening. Biopsy specimens of normal and neoplastic brain tissue are being assayed in our radioisotope laboratory. Preliminary results tend to confirm our impressions obtained by external counting; namely, cysts contain less dye than normal brain, while tumors contain more dye, dependent on their degree of cellularity and vascularity.

RELATIONSHIP TO PREOPERATIVE DIAGNOSIS

Clinically, a focal diagnosis of lobe involvement was made in 54 of the patients and a more diffuse localization was made of hemispheric involvement in another 14. Previous to confirmation by air studies, there were 64 patients in whom the preoperative clinical impressions were inaccurate. In many of these the radiodye test proved of particular value, especially in patients with

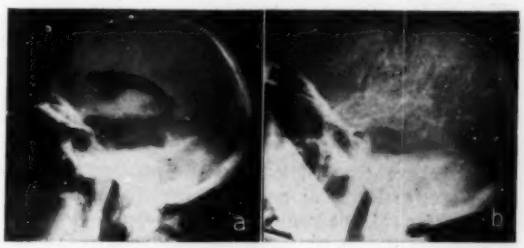

Fig. 14.—Ventriculogram (left) and angiogram (right) of patient L. J., whose tracing is shown in figure 13, reveal a space-occupying lesion in the right frontal lobe.

papilledema, where the differential diagnosis between intracranial neoplasm, hypertension, arachnoiditis and intracranial aneurysm was especially difficult despite the aid of electroencephalography, pneumography and angiography. The radioisotope tracer studies confirmed the localization and diagnosis made clinically in all but 5 per cent of patients. In 7 of the 9 patients whose condition was inaccurately diagnosed by radiodye studies, the clinical signs and symptoms were also inaccurate. At times difficulty was encountered in differentiating a

16. Davis, L.; Martin, J.; Goldstein, S. L., and Ashkenazy, M.: A Study of 211 Patients with Verified Glioblastoma Multiforme, J. Neurosurg. 6: 33-44, 1949.

posterior fossa tumor from one in the frontal lobe. In two such instances, in which the clinical diagnosis of right frontal lobe neoplasm and of right parietal lobe neoplasm was made, radioactive fluorescein studies revealed high concentrations in the right cerebellar and in the midsuboccipital areas. Ventriculography revealed only a moderate hydrocephalus in each case. At surgical intervention a cystic hemangioblastoma and a mixed cell astrocytoma were removed from the sites postulated by the positive radiodye test.

RELATIONSHIP TO ELECTROENCEPHALOGRAPHY

Electroencephalographic studies were performed in 110 of the 200 patients; a slow wave focus diagnostic of tumor was made in 30, while a more diffusely localizing diagnosis was made in 8. There were 26 patients with intracranial tumors and 10 without tumors who had normal or falsely localizing electroencephalograms. Lesions of these patients included 5 glioblastomas, 4 meningiomas and 2 astrocytomas in the cerebral hemispheres, 5 brain stem tumors, 4 pituitary tumors and 2 hemangioblastomas, 2 metastatic carcinomas and 2 astrocytomas in the posterior fossa. In all 36 cases of electroencephalographic inaccuracies the radiodye studies were accurate. For the most part, even the focal diagnosis made by electroencephalography was never as precisely localizing as either the pneumographic or radiodye studies. Frequently there was a wide spread of the response from the involved lobe. Even when localization by electroencephalography was positive, it was sometimes difficult to determine whether the slow wave focus was due to a neoplasm, cerebral hemorrhage, subdural hematoma or contusion of the brain.

RELATIONSHIP TO PNEUMOENCEPHALOGRAPHY AND VENTRICULOGRAPHY

Air studies were performed in 121 of the patients. In 30 of these a focal lesion was localized; in another 27 a more diffuse lesion was localized. The remaining 46 patients had normal air study films. There were 18 inaccuracies. In 10 of these the clinical observations and encephalograms were sufficiently suggestive of tumor that it required 8 craniotomies and 3 suboccipital craniectomies to rule out such a lesion. In all but one instance the radiodye test proved correct. Of the 8 patients who had negative air studies in the presence of a verified tumor, all but one of these had their lesions accurately diagnosed by the radiodye test as tumors.

We believe that radioactive dye studies, by their more precise localization as to lobes, have proved of great value to the neurosurgeon, especially in that group of 27 patients in whom air studies revealed only a diffuse hemispheric involvement. In many cases, filling of the ventricles is difficult or incomplete owing either to technical difficulties or to anomalous or blocked foramens of Magendie or Luschka. In ventriculography poor filling may result from the massiveness of the space-occupying lesion or the severe surrounding edema, features commonly found in glioblastomas or metastatic tumors. Pneumoencephalography, with its severe headaches and occasional shock, as a whole is an exceedingly discomforting procedure as far as the patient is concerned. This is in contrast to the relative harmlessness and simplicity of the radiodye test. As is also well known, ventriculography in itself, though accurate, is not altogether a harmless procedure, and a certain percentage of deaths from this cause alone are recorded in all neurosurgical clinics.

RELATIONSHIP TO OPERABILITY

Surgical operations were performed on 124 patients, and space-occupying lesions were found in 110 instances, 95 of which were microscopically verified. There were 10 patients in whom a tumor was not found at operation, and in only one of these did the radiodye test show tumor localization. In a man aged 57 with a history of recent onset of headaches, dizziness, tinnitus and poor vision, and with evidence of an enlarged sella turcica, ventriculography revealed a hydrocephalus, and a diagnosis of posterior fossa neoplasm was made, despite a negative radiofluorescein test. A suboccipital craniectomy revealed no evidence of tumor. A ventriculocysternostomy was performed because a midline tumor was still postulated. Later, the patient had further visual field changes and a left central facial paresis. It was then believed that he had a pituitary neoplasm, despite the normal radiodye test. A right transfrontal craniotomy was then performed, and again no tumor was found; only evidence of perichiasmal arachnoiditis was seen. The absence of a tumor was verified later at autopsy. In this one patient two major surgical procedures were performed because of the strong clinical and pneumographic evidence of tumor, although none existed as demonstrated by the normal radiodye concentrations.

On the basis of multiple foci of radiodye concentration we have been able to predict accurately the presence of metastatic lesions in 50 per cent of the cases in our series of metastatic carcinomas and sarcomas. In one patient both a left temporal and a right postcentral tumor focus were noted with the radiodye test, although clinically he presented signs only of an obvious left cerebral expanding lesion. One month after the removal of a left temporal anaplastic carcinoma, there developed a left hemiparesis, which was even more pronounced than that on the right, thus clinically supporting the preoperative radiodye evidence of another focus in the opposite hemisphere. Postoperative studies were performed in about 60 per cent of the tumor patients, and thereby we have been able to prognosticate the extent of recurrences of intracranial tumors. These have correlated well with either the progressive or regressive clinical signs and symptoms as well as with the various types of surgical attack and the degree of completeness of removal of such tumors at operation. In four patients with a meningioma, an oligodendroglioma, a hemangioblastoma and a glioblastoma multiforme the tumor was well demarcated at surgical intervention and could be removed completely. In these cases our postoperative studies revealed no tumor concentration, although preoperative studies showed a positive concentration typical of that particular type of tumor.

In the cases of partial excisions of the tumor postoperative studies revealed evidence of tumor concentration, and in practically all these instances the uptake was more intense and appeared earlier than in the preoperative studies. This may be significant of increasing malignancy of the lesion after surgical intervention, a fact fairly well substantiated clinically and histopathologically, especially in those patients with glioblastoma multiforme who appear to go downhill rapidly

after a surgical operation. On the other hand, the associated decompression performed by the removal of the bone flap tends to cause the tumor to gravitate toward the surface, which is now the area of least resistance. In this instance, the inverse square law of electricity comes into effect and may be the cause of the increase of the differential count, merely as the result of the more superficial position of the tumor. This was found to be especially true in those patients who had deep-seated lesions situated near the midline at the time of surgical intervention. However, that the absence of the bone in itself is not the underlying cause of the increased count is shown by the fact that there was no significant difference in counts recorded in the three patients of the four with completely resectable tumors mentioned above, when the overlying bone was removed for decompression purposes.

RELATIONSHIP TO HIGH VOLTAGE IRRADIATION

High voltage roentgen therapy does not seem to have any effect on the absorption of radioactive fluorescein by normal brain tissue or by the more benign gliomas. One patient had a grossly encapsulated oligodendroglioma removed almost completely. Postoperative studies four weeks later revealed only 60 counts per minute differential at the tumor site. This was about one third of the difference noted on his preoperative study and was significant of a slight residuum of tumor tissue which was probably deeply located. The radiodye test performed two weeks after high voltage irradiation again showed no increased uptake of dye. However, the exact opposite was noted in the more infiltrating and vascular tumors. For example, in six patients with glioblastoma multiforme and one with metastatic carcinoma, studied after radiation therapy, the uptake was decidedly increased and was persistent at frequent time intervals; also, it appeared much earlier after the intravenous administration of the dye than it had preoperatively. As noted by Davis and Weil,[17] high voltage roentgen therapy in some glioblastomas may cause striking histopathological changes in the parenchymal cells as well as in the stroma and blood vessels. This tends to increase the already altered permeability of these smaller capillaries and leads to an increased exudation of radiofluorescein dye. To the effect of high voltage roentgen therapy must be added the concurrent effect of removal of the bone flap, which is usually complete in glioblastomas and metastatic tumors.

RELATIONSHIP TO TUMOR SITE

Accuracy was consistent in the superficially located tumors, especially the meningiomas, with the differential count being both high and persistent. This was true not only in the cerebral hemispheres but also in the posterior fossa in such tumors as hemangioblastomas, astrocytomas and metastatic carcinomas. If the tumor proved to be a glioblastoma or a metastatic carcinoma or sarcoma, the site seemed to make little difference; the dye concentration was always sufficiently intense to make diagnosis certain. However, in the case of tumors close to the midline in the region of the hippocampal gyrus, or in the region of the pituitary, hypothalamus or upper part of the brain stem the differential counts were much lower, because of the action of the inverse square law of electricity as the distance from the skull to the tumor increased. Of added aid in such cases was the high differential count in homolateral readings from the parasagittal areas to the base, in the middle fossa in particular, since the symmetric skull readings were equal.

The clinically silent areas of the brain such as the anteromedial aspect of the temporal lobe or posterior-inferior frontal lobe have been relatively easy to diagnose with the aid of this radioactive diiodofluorescein test, even when the electroencephalographic and pneumographic studies were equivocal. A woman aged 58 had generalized seizures of one year's duration, with minimal nonlocalizing signs. Results of electroencephalography were normal, while pneumoencephalography showed only widened subarachnoid spaces indicative of cerebral atrophy. The radiodye studies revealed a persistent concentration typical of a tumor in the right temporal lobe. Craniotomy revealed no evidence of increased intracranial pressure; in fact, there was atrophy of the temporal lobe with softening. A gross diagnosis of cerebral softening was made, until the microscopic sections revealed a fibrillary astrocytoma.

RELATIONSHIP TO SPINAL CORD TUMORS

Eleven patients suspected of having a spinal cord neoplasm were studied. Six of these had verified tumors, two of which were ependymomas, one chordoma, one lymphosarcoma, one lymphoblastoma and one metastatic carcinoma. The radiofluorescein test was accurate in five of these but in the other one only partially so. The other five patients revealed no concentration of radiodye typical of tumor, and the absence of a space-occupying lesion was proved by laminectomy. Within the spinal cord the problems of diagnosis and localization are much more difficult, because gamma radiations are also being recorded from the adjacent liver, spleen, lungs and intestines. Hence, for greater accuracy it is important to have as a control a patient of almost equal weight and stature. This problem is being further pursued, and it appears likely that at the present stage of instrumentation, only tumors far removed from the chest and abdomen, that is, in the cervical and lower lumbosacral regions of the spine, will be accurately localized with the radiofluorescein test.

SUMMARY

In 200 patients suspected of having central nervous system tumors, studied by means of radioactive diiodofluorescein, the results reveal a 95.5 per cent accuracy in diagnosis in lesions verified by surgical intervention or corroborated by pneumography or angiography. The technic is simple, and instrumentation consists of a Geiger-Mueller tube, a counting rate meter and mechanical graphic recorder. There was a 91 per cent accuracy in the 95 histologically verified space-occupying lesions of the central nervous system, which included 40 gliomas, 13 meningiomas, 13 metastatic carcinomas and sarcomas, 7 pituitary tumors, 6 spinal cord tumors, 2 cerebellar hemangioblastomas, 1 acoustic neurinoma, 1 melanoblastoma, 3 unclassified tumors, 4 subdural hematomas, 1 porencephalic cyst, 2 cerebral abscesses, 1 arteriovenous fistula and 1 granulomatous cyst. A positive radiodye test was recorded in five of the six verified tumors of the spinal cord.

17. Davis, L., and Weil, A.: The Effect of Radiation Therapy upon Intracranial Gliomata, Ann. Surg. **106**: 544-616, 1937.

The affinity of radioactive dye for tumor tissue was related to the cellularity and vascular pattern of the tumor. The more malignant the neoplasm, the greater was the radiofluorescein concentration. Metastatic carcinomas and sarcomas gave counts of the highest differential range. Next were the glioblastomas and the vascular cellular meningiomas. The astrocytomas and oligodendrogliomas showed the lowest differential count of all the tumors, coinciding directly with the relative microscopic scarcity of capillaries in these tumors.

There was little or no concentration of dye over the site of chronic subdural hematomas, because these are relatively avascular lesions. The radiodye concentrations over large cysts are even lower than over adjacent normal brain tissue. In a cystic degenerative tumor only the actively growing tumor tissue concentrates the radiodye, whereas the cystic portions actually have a diminished uptake. In areas where the preponderance of cyst fluid over tumor cells and tumor capillaries was too great, the radiodye concentrations were not significantly increased and gave rise to most of the errors encountered with this method.

The negative results also proved to be 95 per cent accurate and were of equal importance in the differential diagnosis of cerebral neoplasms, especially from such lesions as hypertensive cerebrovascular accidents, perichiasmal arachnoiditis, meningovascular syphilis and intracranial aneurysms.

Localization by the radiodye method proved to be much more precise than with electroencephalography or pneumography, whenever verification was obtained at surgery or at autopsy. Pneumography was 63 per cent focally accurate, and electroencephalography was only 45 per cent focally accurate. Tumor recurrences could be demonstrated readily with this technic. Postoperative high voltage roentgen therapy caused an increased concentration of radioactive diiodofluorescein in the more malignant intracerebral neoplasms. Special technics of counting have been evolved, so that the accuracy of localizing midline tumors, such as those of the pituitary, brain stem or posterior fossa, is as accurate as that of localizing the more superficially situated cerebral neoplasms.

With the apparatus and technic described above, the limitations of the test have proved to be few, provided due regard is had to accurate consistent placement of the Geiger tube on the skull and provided suspicious areas are rechecked and compared to symmetric and adjacent areas of the skull. Space-occupying lesions in every area of the skull have been localized accurately. Occasionally, localization was more diffuse, and even lateralization was difficult; in all these cases the tumor was at or near the midline or had actually crossed the midline; in several instances lesions which showed no localizing symptoms on clinical examination of the patient and in which pneumography was of no aid were accurately localized with the radiodye test, as proved at operation or autopsy.

We believe that the radioactive diiodofluorescein tracer test is a simple, safe, painless and reliable method for the localization and diagnosis of brain tumors, and one which should grow in value as increasingly more sensitive detection equipment and more specific radiodyes become available.

700 North Michigan Avenue (11).

RELIEF OF ANGINA PECTORIS BY SYMPATHECTOMY

Report of Results in Ten Patients Subjected to High Thoracolumbar Sympathectomy Including the Anginal Pathway

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In April 1948 Evans and Bartels,[1] in reviewing the results of high thoracolumbar sympathectomy for essential hypertension, expressed dissatisfaction with the fact that anginal pain had been relieved in only 11 (73 per cent) of 15 patients subjected to the usual resection (fourth thoracic to second lumbar ganglions) of Poppen. For patients with severe angina we resolved in the future to remove a greater part of the anginal pathway which had been demonstrated by White, Garrey and Atkins [2] in the dog to include the first four thoracic sympathetic ganglions. Removal of these ganglions had been performed by Lindgren and Olivecrona [3] in 71 patients with angina pectoris, not all of whom had hypertension, with complete relief of pain in 44 per cent and partial relief in 41 per cent. White and Bland [4] reported that their results in 8 patients, 2 of whom had hypertension, showed that "resection limited to the upper three thoracic ganglions is nearly certain to afford complete relief of pain on the side of operation." Klemme [5] believed that his experimental work in dogs showed that the first thoracic ganglion could be spared and relief of anginal pain and coronary vasospasm achieved by removal of only the second through the fifth ganglions on the affected side. He reported one case in which this had been true.

Our own experience that a large percentage of hypertensive patients obtain relief of anginal pain without having resection of even a part of the so-called anginal pathway has been borne out by others. Peet,[6] reporting operations to the eighth thoracic ganglion as the upper level, stated: "Angina pectoris, either in a mild or severe form, occurs commonly in hypertensive patients. It may be the result of simple coronary spasm but in many it is probably due to actual arteriosclerosis of the coronary vessels. Particularly . . . when the hypertension is of long duration . . . the patient with anginal attacks has certainly a much graver prognosis.' Fortunately many patients with angina pectoris have complete relief following splanchnicectomy."

Peet reported two cases of angina; one patient obtained relief for 10 years, the other had coronary occlusion before operation but no pain for five years after surgical intervention. The same author again wrote [7] that resection to the seventh or eighth thoracic

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1. Evans, J. A., and Bartels, C. C.: Results of High Dorsolumbar Sympathectomy for Hypertension, Ann. Int. Med. **30**: 307-329 (Feb.) 1949.
2. White, J. C.; Garrey, W. E., and Atkins, J. A.: Cardiac Innervation: Experimental and Clinical Studies, Arch. Surg. **26**: 765-786 (May) 1933.
3. Lindgren, I., and Olivecrona, H.: Surgical Treatment of Angina Pectoris, J. Neurosurg. **4**: 19-39 (Jan.) 1947.
4. White, J. C., and Bland, E. F.: Surgical Relief of Severe Angina Pectoris, Medicine **27**: 1-42 (Feb.) 1948.
5. Saccomanno, G.; Utterback, R. A., and Klemme, R. M.: Anatomic Data Regarding Surgical Treatment of Angina Pectoris, Ann. Surg. **125**: 49-56 (Jan.) 1947.
6. Peet, M. M.: Hypertension and Its Surgical Treatment by Bilateral Supradiaphragmatic Splanchnicectomy, Am. J. Surg. **75**: 48-68 (Jan.) 1948.
7. Peet, M. M.: Results of Bilateral Supradiaphragmatic Splanchnicectomy for Arterial Hypertension, New England J. Med. **236**: 270-277 (Feb. 20) 1947.

ganglion gave striking relief of anginal pain and palpitation. Some patients were completely relieved. In a few instances the electrocardiogram again became normal.

Peet [8] affirmed his belief that resections of the sympathetic chain to an upper level of the eighth thoracic ganglion together with splanchnicectomy help angina by relieving strain. He entirely relieved 14 patients of angina for five years. Of 68 patients with hypertension who had angina, 42 (62 per cent) survived five to 12 years, and half of these, or 31 per cent, obtained definite relief; 14 patients had complete relief of angina for five years or more. None of Peet's operations involved the anginal pathway.

During the course of several years, Grimson [9] performed so-called total sympathectomies on 133 hypertensive patients. This operation includes the anginal pathway. All but two of 33 patients with precordial pain in this group of 133 hypertensive patients were relieved. He stated: "Since the operation interrupts both nervous pathways conducting pain from the heart and sympathetic cardiac accelerators, elimination of these complaints is expected in all cases. The exceptional persistence in the few might be explained by error in subjective observations."

Smithwick [10] corroborated Grimson's observation in a group of 15 hypertensive patients with angina on whom he performed thoracic sympathectomy and splanchnicectomy to the level of the first thoracic ganglion.

OBSERVATIONS ON THE ANGINAL PATHWAY

The so-called anginal pathway is well accepted as passing through the inferior cervical ganglion (first thoracic) and those ganglions below it, including the fourth thoracic (fig. 1). The early resections of the cervical ganglions as pioneered by Jonnesco [11] proved failures because, as now known, direct fibers pass from the cardiac plexus to the second and third thoracic ganglions. According to White and Bland [4] the afferent pain fibers stimulated by cardiac anoxia and running in the middle and inferior cardiac nerves are all concentrated through the inferior cervical ganglion or stellate ganglion and the first thoracic ganglion usually fused with the stellate. There are also direct connections from the cardiac plexus passing through the second and third thoracic and probably the fourth thoracic ganglions.

It is not certain, according to White, whether pain fibers from the heart pass through the fourth thoracic ganglion. We are inclined to believe that they do because by extension of the resection level in splanchnicectomies for hypertension with angina pectoris from a point below the fourth thoracic ganglion invariably to include this ganglion the relief of anginal pain was raised from 12.5 to 73 per cent. This notable increase in satisfactory results cannot be the result solely of relief of the cardiac load from drop in blood pressure or of prolonged rest after operation. White and Bland [4] noted one case in which it was necessary to resect the fourth thoracic sympathetic ganglion on the left before a good result was obtained. In contrast, one of our patients who was subject to anginal attacks from whom the second and third thoracic ganglions were removed bilaterally for Raynaud's disease and scleroderma continued to have attacks of pain in the left arm although the substernal component was completely relieved. Removal of the fourth thoracic ganglion in this patient was not necessary, therefore, to abolish substernal pain. It would appear that the persistent pain in the left arm in this patient is mediated through the first left thoracic ganglion. This case is not included in the reported series because the patient did not have hypertension and the operation was not purposely designed to relieve the angina, the fear being entertained at that date of robbing her of warning anginal pain. Two similar cases are included in the series; in these the left arm pain persisted when the first thoracic ganglion on the left was not resected. However, left arm pain did disappear in three patients whose first thoracic ganglions were left untouched.

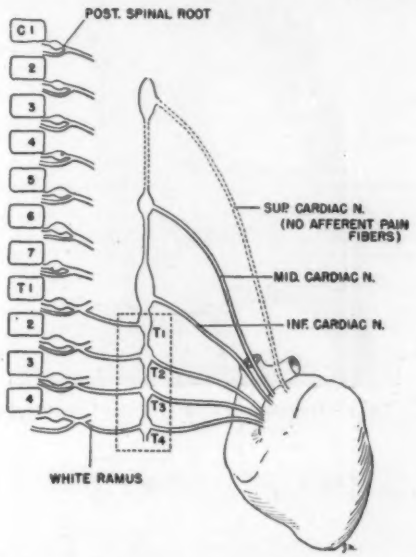

Fig. 1.—The cardiac afferent pain pathway. Note how the anginal pathway is funneled through the first, second, third and fourth thoracic ganglions.

Complete relief of anginal pain was obtained in five patients, four of whom had the first thoracic ganglion on the left resected. In two of these patients not even throat pain occurred after operation. The weight of evidence therefore seems to indicate the importance of including the first thoracic ganglion in order that the patient may obtain complete relief. The recurrence of pain on the right in two patients leads us now to advise bilateral resection to the first thoracic sympathetic ganglion. This decision is consistent with the well recognized anatomic facts as demonstrated by White and Bland [4] and previously in animal experiments by White, Garrey and Atkins.[2]

As we embarked gradually on these procedures, our hesitancy to carry resection immediately up to the stellate ganglion was caused by the desire to avoid ptosis. In some cases it is difficult to avoid resection of part of the stellate ganglion and the production of a Horner's syndrome if fusion of the first thoracic with the stellate

8. Isberg, E. M., and Peet, M. M.: Influence of Supradiaphragmatic Splanchnicectomy on Heart in Hypertension, Am. Heart J. **35**: 567-583 (April) 1948.

9. Grimson, K. S.; Orgain, E. S.; Anderson, B.; Broome, R. A., Jr., and Longino, F. H.: Results of Treatment of Patients with Hypertension by Total Thoracic and Partial to Total Lumbar Sympathectomy, Splanchnicectomy and Celiac Ganglionectomy, Ann. Surg. **129**: 850-871 (June) 1949.

10. Kinsey, D., and Smithwick, R. H.: Early Experiences with Total Thoracic Sympathectomy in Hypertensive Patients with Coronary Heart Disease and Angina Pectoris, Proc. New England Heart A. pp. 63-64, 1946-47.

11. Jonnesco, T.: Operative Cure of Angina Pectoris, Bull. Acad. de méd. Paris **84**: 93-102 (Oct. 5) 1920.

ganglion is too close. None of our patients complained who did obtain a ptosis, however, and it has been our observation that in time the ptosis becomes less decided. The fact that the higher the resection the better the results is also borne out by a comparison of results to the height of the resection. This is especially true on the left side.[12] Table 1 makes this evident.

Fig. 2.—The upper end of the sympathetic resection.

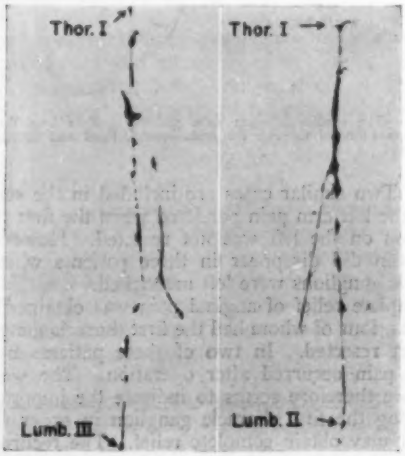

Fig. 3.—Specimens removed in sympathectomy from the stellate ganglion to the third lumbar ganglion (hypertension with severe angina).

TECHNIC OF OPERATION

The technic used for the removal of the stellate ganglion and the thoracic sympathetic ganglion chain is identical to the procedure previously described[13] for extensive combined thoracolumbar sympathectomy, except that the incision is extended cephalad approximately 4 cm. The medial portion of the fifth rib is removed as well as the eighth and eleventh ribs instead of the seventh and eleventh ribs as previously described. This allows excellent extrapleural exposure of the upper thoracic sympathetic chain and ganglions as indicated by figure 2. The entire thoracic sympathetic system including the stellate ganglion may be removed in this manner (fig. 3).

GENERAL RESULTS

High thoracolumbar sympathectomy (table 2) was performed in a series of 10 hypertensive patients with severe disabling angina pectoris, among whom only one had had probable coronary infarction (case 8) but all presumably had coronary insufficiency. The follow-up period was from three months to three years. Complete relief except for a residual sensation of constriction in the throat was obtained in five, or one half of the cases. There was partial but satisfactory relief of pain in the remaining five patients. One of the latter group, referred to Dr. Poppen for operation by Drs. Joslin and Root, was bedridden with status anginosus. Merely turning in bed produced pain. Although she still suffers mild substernal pain, causing her to stop to rest, she is active, doing all her housework and going on shopping trips (case 5).

TABLE 1.—*Results in Relation to Height of Resection*

Complete Relief			Partial Relief		
Case	Left	Right	Case	Left	Right
2	T_1	T_2—Throat	1	T_2	T_2—Left side of neck, fingers
4	T_2	T_2	3	T_2	T_1—Left arm, throat (seldom)
8	T_1	T_1—Throat, jaw	5	T_2	T_4—Substernal pain on moderate exertion; complete relief of status anginosus
9	T_2	T_2—Throat	6	T_2	T_1—Hot sensation in arms, throat
10	T_1	T_1	7	T_2	T_2—Left side of chest, throat (mild)

In table 3 is listed the progressive relief of anginal pain in successive reports from the Lahey Clinic on results of splanchnicectomy for hypertension.

The patients in series 4 all had severe disabling angina. Milder angina has so often been relieved by resection to the fourth thoracic level that we have not subjected these patients to resection of the first thoracic ganglion with its additional technical difficulties and danger of ptosis.

In series 1 patients with anginal pain were not selected for surgical treatment. In series 2 and 3 no careful note was made of whether the patient still had partial or complete relief. The pattern of the pain when it did recur was never noted as having been changed, as it invariably is when all or part of the anginal pathway is resected. There was no operative mortality in the 10 patients in series 4. One patient died three years later of a coronary infarction (case 1). One other patient has survived three years, and three have survived two years.

COMMENT

All our patients had fairly severe symptoms of postural hypotension for about six months postoperatively, but only the most severely ill patient, who had status anginosus (case 5), experienced angina on standing up quickly. Resection in this case was limited to

12. These operations being splanchnicectomies for hypertension, it is to be understood that the lower end of resection was the second or third lumbar ganglions bilaterally.

13. Poppen, J. L.: Extensive Combined Thoracolumbar Sympathectomy in Hypertension, Surg., Gynec. & Obst. 84: 1117-1123 (June) 1947.

the second thoracic ganglion on the left and the fourth thoracic ganglion on the right. It might be expected that decreased coronary flow resulting from rapid severe drop of blood pressure on standing would increase the incidence of angina in the hypertensive patient. The fact that this seldom occurs is an argument in favor of the possibility that abolition of the cardiac sympathetic pathway actually increases coronary flow. The principle of the reflex sympathetic dystrophy type of pain and the theory of the internuncial pool of Lorente de No [14] may account for the success of the operation. That some such mechanism may pertain is further borne out by the improvement of a Dupuytren's contracture in the left hand of one patient (case 9) in whom resection was carried out to the first thoracic ganglion on the left, while the Dupuytren's syndrome on the right hand became worse when resection was only to the level of the third thoracic sympathetic ganglion. Kehl [15] reported six cases of Dupuytren's contracture following coronary disease and infarction. We suggest that good results might be expected in cases of the shoulder-hand syndrome, a rather rare complication of coronary artery disease described by Hilker.[16] Johnson [17] reported that hand changes take place in 21.8 per cent of patients with myocardial infarction, suggesting a reflex sympathetic dystrophy induced by cardiac pain. These observations enhance the rationale of sympathectomy for anginal pain.

Another disadvantage of the operation besides the ptosis of Horner's syndrome, postural hypotension and severe sweating in the groins is swollen nasal membranes (noted by Grimson and others [9]). This last complaint occurred in two of our patients, but it tends to subside early.

That coronary irrigation may actually be increased in much the same way as in a desympathectomized limb is suggested by the increased capacity of these patients for work, before the residual throat constriction symptom of angina occurs. For example, in case 8 the patient had hypertension grade 3 and probably remote anterolateral myocardial infarction. For the past 18 months she had been incapacitated and unable to do any housework or to walk in cold weather. Sixteen months after resection of the first thoracic to the second lumbar sympathetic ganglions on the left and the third thoracic to the second lumbar ganglions on the right she reported a new sensation of pain in the throat, radiating to both lower jaws. This pain was so unfamiliar to her and so different from her old angina pain that she attributed it to a small, nontoxic, colloid, adenomatous goiter and thought its removal might help. Only on careful questioning did it become apparent that this pain also occurred on effort but only after much greater exertion than that required to cause pain before operation. In fact she now does all her housework and goes shopping in any weather. Her blood pressure was still 230 mm. systolic and 110 mm. diastolic as compared to 250 mm. systolic and 124 mm. diastolic before operation. It was almost one and a half years after operation; she had had no intervening coronary attacks, so the extended exercise tolerance could not be attributed to reduction of cardiac load, prolonged rest after

TABLE 2.—*Summary of Cases*

Case	Age	Sex	Preoperative Status	Level of Operation	Time of Follow-up	Present Status	Result
1	42	F	Grade 3 hypertension; pain in right chest and arm on exertion	Left: T_2-L_2 Right: T_2-L_2	3 yr.	Experienced immediate relief of pain, but it recurred on the right; died 9/11/49 of coronary occlusion	Partial relief
2	46	F	Grade 2 hypertension; substernal pain on exertion	Left: T_1-L_2 Right: T_2-L_2	3 yr.	No angina	Complete relief, except throat
3	47	F	Grade 2 hypertension; exertional anginal pain	Left: T_2-L_2 Right: T_1-L_2	2 yr., 8 mo.	Occasional pain in throat and left arm on exertion	Partial relief
4	41	M	Grade 3 hypertension; substernal pressure on exertion	Left: T_2-L_2 Right: T_2-L_2	2 yr., 9 mo.	No angina	Complete relief
5	49	F	Diabetes mellitus; grade 3 hypertension; angina decubitus and status anginosus	Left: T_2-L_2 Right: T_1-L_2	2 yr., ...	No longer bedridden but has substernal pain on exertion and on standing quickly; complete relief of status anginosus	Partial relief
6	42	M	Grade 3 hypertension; persistent angina of effort despite previous T_2-L_2 resection	Left: T_2-T_5 Right: T_1-T_7	20 mo.	No precordial pain but an occasional hot sensation in throat and arms	Partial relief
7	40	F	Grade 2 hypertension; substernal smothering, pain on exertion	Left: T_2-L_2 Right: T_2-L_2	15 mo.	No angina for 1 yr. but in last 3 mo. return of some chest pain on exertion and choking sensation in throat	Partial relief
8	54	F	Grade 3 hypertension; substernal pain on exertion	Left: T_2-L_2 Right: T_1-L_2	1 yr., 4 mo.	No angina; bilateral subacute subacromial bursitis developed	Complete relief, except throat and jaw
9	45	M	Grade 2 hypertension; bilateral Dupuytren's contracture; angina of effort	Left: T_2-L_2 Right: T_2-L_2	6 mo.	No pain, only a sense of constriction in throat on exertion; Dupuytren's contracture better on left, worse on right	Complete relief, except throat
10	44	F	Grade 2 hypertension; dull, squeezing, substernal pain on exertion	Left: T_2-L_2 Right: T_2-L_2	3 mo.	No pain	Complete relief

TABLE 3.—*Comparison of Relief of Anginal Pain in Four Series of Cases*

	Number of Persons with Angina	Height of Resection	Satisfactory Relief, Percentage
Series 1.....	0	T_{12}-L_2 or L_3	(Angina patients were avoided)
Series 2.....	8	Between T_{12} and T_5-L_2	12.5
Series 3.....	15	T_4	73.0
Series 4.....	10	Various parts of anginal pathway	100.0

14. Lorento de No, R.: Analysis of the Activity of the Chains of Internuncial Neurons, J. Neurophysiol. **1**: 207-244 (May) 1938.
15. Kehl, K. C.: Dupuytren's Contracture as a Sequel to Coronary Artery Disease and Myocardial Infarction, Ann. Int. Med. **19**: 213-233 (Aug.) 1943.
16. Hilker, A. W.: The Shoulder-Hand Syndrome: A Complication of Coronary Artery Disease, Ann. Int. Med. **31**: 303-311 (Aug.) 1949.
17. Johnson, A. C.: Disabling Changes in Hands Resembling Sclerodactylia Following Myocardial Infarction, Ann. Int. Med. **19**: 433-456 (Sept.) 1943.

operation or the relief of effort angina that sometimes comes after a coronary infarction. White and Bland [4] have successfully abolished residual jaw pain by mandibular nerve injection.

Another possible argument in favor of increased coronary flow after desympathectomizing the heart is seen in case 3. This patient's electrocardiographic exercise tolerance test changed from positive to negative. She wrote in her letter "I feel much better, do more work, have adopted a baby and am kept very busy." She still has occasional pain in the throat and left arm on exertion two years and eight months after resection of the third thoracic to the second lumbar ganglions on the left and the first thoracic to the second lumbar ganglions on the right.

The disappearance of the throat constriction together with all pain in two patients is probably the result of extension of exercise tolerance incident to increased coronary flow rather than of resection of any pain pathway mediating a sense of throat constriction.

In case 1, in which the patient died three years after operation, results were the poorest of all; unfortunately the patient had resection only to the sixth thoracic ganglion on the right, although her pain preoperatively was mostly right-sided. Sweating could be demonstrated over the right side of the chest and the right arm after operation, proving that the most important pathway in this case was not touched at all. Our experience with this patient bears out White's [4] contention that cardiac pain is mediated to the right by the right cardiac nerves and to the left by the left cardiac nerves.

Case 6 is of interest because the patient had resection to the seventh thoracic ganglion in 1943 but still had angina. When he underwent operation again for angina and persistent hypertension he obtained gratifying relief from resection to the second thoracic on the left and the first thoracic on the right.

In case 7 the patient is classed as obtaining partial relief although she had complete relief for a year. Her recurrence in the last three months may be due to regeneration of the neural pathways, but she has not yet been subjected to a sweat test to determine this point.

CONCLUSIONS

1. Resection of various parts of the sympathetic anginal pathway (first to the fourth thoracic on the right and left) resulted in satisfactory relief of anginal pain in all 10 patients. Relief was complete in five except for a residual sense of throat constriction in three.

2. Resection of the anginal pathway should include the first to the fourth thoracic ganglions on both sides for best results.

3. There is not always residual throat or jaw pain, but relief from this may result because (*a*) exercise tolerance is improved by lessened strain on the heart from hypertension and (*b*) actual dilation of the coronary bed occurs.

4. The pernicious circle of anginal pain in status anginosus can be broken by sympathectomy, probably on the same basis that reflex sympathetic dystrophy is helped.

5. Horner's syndrome is not a valid contraindication to carrying the resection to the lower stellate ganglion (first thoracic), especially when the resection is bilateral.

HORMONE STUDIES IN PEPTIC ULCER

Pituitary Adrenocorticotropic Hormone (ACTH) and Cortisone

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For some time we and our associates [1] have been interested in a possible pituitary-gonadal mechanism in the pathogenesis of peptic ulcer.[1b] Several clinical observations tend to support this thesis: first, peptic ulcer and its complications are less common in women than in men; second, pregnancy usually has a beneficial effect on symptoms of peptic ulcer; third, although peptic ulcer in children is rare, its incidence is equal in both sexes until maturity, when the incidence again becomes higher in the male; fourth, peptic ulcer in women not infrequently has its onset during the climacterium; fifth, the menopause may be expected to aggravate symptoms of ulcer, and sixth, a fairly high percentage of women with proved duodenal ulcer apparrently show an endocrine imbalance. It should also be noted that during the reproductive years the anterior pituitary gland is more active in the female than in the male and that it hypertrophies during pregnancy. We postulated the existence of a sex-linked endocrine mechanism, with increased production of pituitary hormones, as the means by which the normal woman is protected against peptic ulcer during her reproductive decades. Supportive evidence for this belief was found in dogs

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1. (*a*) Sandweiss, D. J.; Saltzstein, H. C., and Farbman, A. A.: The Prevention or Healing of Experimental Peptic Ulcer in Mann-Williamson Dogs with the Anterior Pituitary-like Hormone (Antuitrin-S): Preliminary Report, Am. J. Digest Dis. **5**: 24 (March) 1938; The Relation of Sex Hormones to Peptic Ulcer, ibid **6**: 6 (March) 1939. Sandweiss, D. J.; Sugarman, M. H.; Friedman, M. H. F.; Saltzstein, H. C., and Farbman, A. A.: The Effect of Urine Extracts on Peptic Ulcer: An Experimental and Clinical Study, ibid. **8**: 371 (Oct.) 1941. Beaver, D. C.; Sandweiss, D. J.; Saltzstein, H. C.; Farbman, A. A., and Sanders, A. W.: The Effects of Urine Extracts on the Prevention and Healing of Experimental Ulcers in Dogs, Am. J. Clin. Path. **12**: 617 (Dec.) 1942. Sandweiss, D. J.: Is a Disturbance of Endocrine or Sex Glands Responsible for Duodenal Ulcer? Hebrew M. J. **2**: 182, 1942; The Immunizing Effect of the Anti-Ulcer Factor in Normal Human Urine (Anthelone) Against the Experimental Gastrojejunal (Peptic) Ulcer in Dogs, Gastroenterology **1**: 965 (Oct.) 1943. (*b*) Sandweiss, D. J., and Saltzstein, H. C.: Hormone Preparations in the Treatment of 282 Mann-Williamson Dogs, Surgery **26**: 647 (Oct.) 1949. (*c*) Friedman, M. H. F.; Recknagel, R. O.; Sandweiss, D. J., and Patterson, T. L.: Inhibitory Effect of Urine Extracts on Gastric Secretions, Proc. Soc. Exper. Biol. & Med. **41**: 509 (June) 1939. Farbman, A. A.; Sandweiss, D. J., and Saltzstein, H. C.: The Effect of Pregnancy and Antuitrin-S on Cincophen Ulcers in Dogs, Am. J. Digest Dis. **6**: 702 (Dec.) 1939. Saltzstein, H. C.; Farbman, A. A., and Sandweiss, D. J.: The Sex Incidence of Peptic Ulcer in Children, Endocrinology **27**: 400 (Sept.) 1940. Friedman, M. H. F., and Sandweiss, D. J.: The Gastric Secretory Depressant in Urine, Am. J. Digest. Dis. **8**: 366 (Oct.) 1941. Sandweiss, D. J., and Friedman, M. H. F.: Is the Beneficial Effect of Urine Extracts on Mann-Williamson Ulcers Due to the Gastric Secretory Depressant in Urine? ibid. **9**: 166 (May) 1942. Sandweiss, D. J.; Podolsky, H. M.; Saltzstein, H. C., and Farbman, A. A.: Deaths from Perforation and Hemorrhage of Gastroduodenal Ulcer During Pregnancy and Puerperium, Am. J. Obst. & Gynec. **45**: 131 (Jan.) 1943. Kaulbersz, J.; Patterson, T. L.; Sandweiss, D. J., and Saltzstein, H. C.: The Relation of Endocrine Glands to the Gastric Secretory Depressant in Urine (Urogastrone), Science **102**: 530 (Nov.) 1945. Friedman, M. H. F., and Sandweiss, D. J.: A Method for Bio-Assay of Extracts Which Inhibit Gastric Secretions, Am. J. Digest. Dis. **13**: 108 (April) 1946. Kaulbersz, J.; Patterson, T. L.; Sandweiss, D. J., and Saltzstein, H. C.: Alterations in Urogastrone Excretion Produced by Extirpation of Various Endocrine Glands, Am. J. Physiol. **150**: 373 (Sept.) 1947; The Effect of Urine Extracts from Oöphorectomized Dogs on Gastric Secretion, Rev. Gastroenterol. **16**: 254 (March) 1949; The Effect of Urine Extract from Thyroidectomized Dogs on the Gastric Secretion, ibid **16**: 257 (March) 1949. Sandweiss, D. J.; Kaulbersz, J.; Patterson, T. L., and Saltzstein, H. C.: Concerning Relation of the Pituitary Gland to Enterogastrone and Urogastrone, Federation Proc. **8**: 138 (March) 1949. Sandweiss, D. J.: The Present-Day Treatment of Duodenal Ulcer, Pennsylvania M. J. **52**: 1543 (Nov.) 1949.

with Mann-Williamson ulcers.[1a,b] The anterior pituitary hormones (luteinizing and follicle stimulating), the corpus luteum hormone (progesterone) and urine extracts from pregnant and nonpregnant women (uroanthelone) appeared to be of significant value in preventing or healing these ulcers, but estrogens were without benefit.

A new approach to this study of sex-endocrine relationships was suggested by Hench's successful use of pituitary adrenocorticotropic hormone (ACTH) and cortisone in rheumatoid arthritis,[2] that is, the added possibility of primary or intermediate activity of the adrenals in the pathogenesis of ulcer. Hench's use of these hormones was predicated on observations that both pregnancy [3] and jaundice [4] have an ameliorating influence on rheumatism. Since pregnancy, as a rule, relieves the symptoms of peptic ulcer as well as those of rheumatoid arthritis, one might assume that the same pituitary-adrenal hormone mechanism would be active in both diseases. Therefore, we have attempted to determine what effect, if any, these hormones might have on experimental Mann-Williamson ulcers in the dog. We also studied the urinary excretion of 17-ketosteroids and 11-oxycorticosteroids in both normal subjects and patients with duodenal ulcer. We wish to report our preliminary data and also our observations on the treatment of four ulcer patients, two with pituitary adrenocorticotropic hormone and two with cortisone.

EFFECT OF HORMONES ON EXPERIMENTAL ULCERS

Experimental ulcers in dogs were produced by the Mann-Williamson operative technic,[5] sometimes referred to as surgical duodenal drainage.[6] This operative technic was chosen because the jejunal ulcer which ensues closely simulates, macroscopically and microscopically, the postoperative jejunal ulcer in man.

The present series involves 23 Mann-Williamson dogs: 11 control animals; 6 treated with cortisone and 6 treated with pituitary adrenocorticotropic hormone. The weight of the animals ranged between 20 and 25 pounds (9 and 12 Kg.). Treatment with cortisone was started 13 to 30 days after the operation and continued daily throughout the life of each animal. The dogs received 20 mg. of cortisone acetate subcutaneously or intermuscularly daily in two equally divided doses. The drug was administered as a sterile saline suspension containing 1.5 per cent benzyl alcohol as a preservative. Treatment with pituitary adrenocorticotropic hormone was started eight to 35 days after the Mann-Williamson operation and continued daily through the life of the animals. The hormone was administered subcutaneously or intramuscularly in doses of 10 to 15 mg. a day divided into two equal doses (Armour standard LaTA or its equivalent). Final and detailed results will be reported later, since the study is not yet complete. However, on the basis of our data to the time of writing the following preliminary summary may be made:

1. Shortly after operation, control dogs began to lose weight, showed signs of weakness and appeared chronically ill in most instances. We noticed some improvement in the dogs treated with pituitary adrenocorticotropic hormone. As a group the cortisone-treated dogs were in good condition, continued in a state of excellent nutrition and showed their usual vigor and activity.

2. The average postoperative survival time of the cortisone-treated animals was twice that of the control animals and about 40 per cent longer than that of the animals treated with the pituitary hormone. To date, only one of the 11 control animals survived six months after the operation. However, two of the six animals treated with pituitary adrenocorticotropic hormone and four of the six cortisone-treated animals were alive at the end of six months.

3. This beneficial effect of cortisone and to a lesser degree of pituitary adrenocorticotropic hormone on the postoperative survival time of Mann-Williamson dogs is similar to that obtained by using an extract prepared from urine of pregnant mare (uroanthelone, kutrol[7]) and given orally. Three of seven Mann-Williamson dogs so treated are still alive and in an excellent nutritional state 6, 8 and 10 months after surgical intervention. The beneficial effect obtained is therefore not associated with cortisone alone. The effects of these hormones on ulcers and other tissues and organs will be reported in detail elsewhere. One striking effect is the pronounced reduction in the postoperative visceral adhesions in the cortisone-treated and adrenocorticotropic hormone-treated Mann-Williamson dogs as compared with those found in the untreated animals.

Comment.—The average survival time of Mann-Williamson dogs treated with cortisone is longer than that of the animals given pituitary adrenocorticotropic hormone and considerably longer than that of the untreated animals. The treated animals, as a group, were in an exceptionally good nutritional state and in good vigor. However, similar results have been obtained with an extract from pregnant mares' urine (hormonal products).[7]

URINARY EXCRETION OF 11-OXYCORTICOSTEROIDS AND 17-KETOSTEROIDS

Material and Method.—Because it is generally accepted that urinary excretion of 11-oxycorticosteroids [8] and 17-ketosteroids [9] is a measure of adrenal activity, we compared the urinary excretion of these products in 31 normal subjects (16 males and 15 females) with the excretion in 43 patients with duodenal ulcers (31 males and 12 females). Ages in both groups of subjects ranged between 20 and 66 years. In 12 of the ulcer patients steroid excretion was studied during an ulcer attack and again months later, when they were in a period of remission.

Both ambulatory and hospitalized patients were included. All had the typical ulcer syndrome and roentgenologic evidence of ulcer. Both groups (the normal subjects were all ambulatory)

2. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: The Effect of a Hormone of the Adrenal Cortex (17-Hydroxy-11-dehydrocorticosterone: Compound E) and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis: Preliminary Report, Proc. Staff Meet., Mayo Clin. **24**: 181 (April 13) 1949; Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions: A Study in Clinical Physiology, Arch. Int. Med. **85**: 545 (April) 1950.

3. Hench, P. S.: The Ameliorating Effect of Pregnancy on Chronic Atrophic (Infectious Rheumatoid) Arthritis, Fibrositis and Intermittent Hydrarthrosis, Proc. Staff Meet., Mayo Clin. **13**: 161 (March 16) 1938.

4. Hench, P. S.: Analgesia Accompanying Hepatitis and Jaundice in Cases of Chronic Arthritis, Fibrositis, and Sciatic Pain, Proc. Staff Meet., Mayo Clin. **8**: 430 (July 12) 1933.

5. The operative procedure is as follows: Transection of the pylorus, closure of the duodenal stump, transection of the jejunum 4 inches (10 cm.) beyond the ligament of Treitz, end to side gastrojejunostomy and side to side jejunoileostomy, anastomosing the proximal curved portion of the jejunum to the ileum 10 inches (25 cm.) above the ileocecal valve. This short-circuits the bile, pancreatic juice and duodenal secretion into the terminal ileum. The acid gastric juice and gastric contents enter the jejunum.

6. Mann, F. C., and Williamson, C. S.: The Experimental Production of Peptic Ulcer, Ann. Surg. **77**: 409 (April) 1923.

7. The term anthelone is applied in an all-inclusive sense to extracts of urine and intestinal mucosa having antiulcer properties. Anthelone agents have been prepared from a number of sources including urine, human or other, (uroanthelone) and hog intestine (enteroanthelone, previously referred to as enterogastrone concentrates).

8. The 11-oxycorticosteroids are organic compounds which contain the fundamental nuclear framework of the perhydrocyclopentenophenanthrene ring system, in common with the sterols, bile acids and sex hormones. They are further differentiated from the other adrenal corticosteroids by the presence of an oxy or hydroxy radical on C 11. These substances have a specific effect on protein and carbohydrate metabolism, in contrast to the corticosteroids, which lack an atom of oxygen on C 11 and which have a specific effect on water and electrolyte metabolism.

9. The 17-ketosteroids also contain the fundamental nuclear skeleton of the same perhydrocyclopentenophenanthrene ring system. These compounds receive their name because of the presence of a ketone group on C 17. They are produced by both the adrenal cortex and the testes. Many exhibit androgenic activity, but others are biologically inert.

were carefully briefed in the method of collecting 24-hour urine excretions. Chloroform was added to the bottles as a preservative before collection was started. The complete 24-hour urine output for each subject was delivered to the laboratory on the morning the collection was completed. In every case the initial extraction was begun within eight hours after the urine was received in the laboratory.

The 11-oxycorticosteroids were determined by the chemical method of Daughaday, Jaffe and Williams,[10] which depends on measurement of the formaldehyde liberated by the hormone on oxidation with periodic acid. An aliquot of an unhydrolyzed 24-hour urine specimen is acidified and extracted with chloroform at room temperature. Partition of the extract between benzene and water adds to the specificity, and a distillation step separates the formaldehyde from interfering chromogens before color development with chromotropic acid.

The 17-ketosteroids were determined by the rapid chemical method of Robbie and Gibson,[11] which consists essentially of acid hydrolysis of an aliquot of a 24-hour urine specimen, followed by carbon tetrachloride extraction. The hormone content is then assayed by the alkaline *m*-dinitrobenzene technic.

TABLE 1.—*11-Oxycorticosteroids: Average 24-Hour Urinary Excretion (Mg./24 Hr.)*

Normal Subjects (31)			Patients with Duodenal Ulcer (43)		
Below 0.74 Mg.	0.74 to 1.00 Mg.	1.00 Mg. or Higher	Below 0.74 Mg.	0.74 to 1.00 Mg.	1.00 Mg. or Higher
None	0.74	1.00	0.40	0.75	1.00
....	0.84	1.01	0.42	0.79	1.06
....	0.85	1.02	0.44	0.80	1.20
....	0.88	1.02	0.49	0.81	1.23
....	0.97	1.04	0.52	0.85	1.28
....	0.90	1.05	0.52	0.86	1.29
....	....	1.06	0.53	0.88	1.30
....	....	1.10	0.54	0.89	1.32
....	....	1.14	0.55	0.89	1.35
....	....	1.14	0.60	0.90	1.50
....	....	1.20	0.61	0.92	1.58
....	....	1.35	0.61	0.93	1.77
....	....	1.43	0.64	0.95	1.86
....	....	1.46	0.67	0.96	....
....	....	1.50	0.72	0.98	....
....	....	1.50	....	....	....
....	....	1.52	....	....	....
....	....	1.60	....	....	....
....	....	1.65	....	....	....
....	....	1.69	....	....	....
....	....	1.76	....	....	....
....	....	1.82	....	....	....
....	....	2.25	....	....	....
....	....	2.45	....	....	....
....	....	2.72	....	....	....
None	19%	81%	35%	35%	30%
19% of the Patients			70% of the Patients		
Average 1.35 mg./24 hr.			Average 0.91 mg./24 hr.		

Results.—Table 1 presents the 24-hour urinary excretion of 11-oxycorticosteroids in each of the 31 normal healthy adult subjects and in each of the 43 patients with active duodenal ulcer. Table 2 shows the average excretion of both the 11-oxycorticosteroids and the 17-ketosteroids for the two groups of subjects.

Normal Subjects: 1. Average 11-oxycorticosteroid excretion for the normal subjects is 1.35 mg. (males 1.25 mg. and females 1.46 mg.).

2. Average 17-ketosteroid excretion for the normal subject is 9.6 mg. per 24-hour urine sample (males 10.9 mg. and females 8.3 mg.). The higher excretion in the males is expected because of the role played by the testis in the production of a portion of these compounds.

10. Daughaday, W. H.; Jaffe, H., and Williams, R. H.: Chemical Assay for "Cortin": Determination of Formaldehyde Liberated on Oxidation with Periodic Acid, J. Clin. Endocrinol. **8**: 166 (Feb.) 1948.

11. Robbie, W. A., and Gibson, R. B.: Rapid Clinical Determination of Urinary 17-Ketosteroids, J. Clin. Endocrinol. **3**: 200 (April) 1943.

Ulcer Patients: 1. The average 11-oxycorticosteroid excretion for the ulcer patients is 0.91 mg. (males 0.88 mg. and females 1.00 mg.). Seventy per cent of patients had values below 1.0 mg., but only 19 per cent of normal subjects had such low determinations. Thirty-five per cent of the ulcer patients excreted less than the lowest average normal figure (0.74 mg.). These lower values are statistically significant (table 3).

TABLE 2.—*Average 24-Hour Urinary Excretion of 11-Oxycorticosteroids and 17-Ketosteroids*

Group	11-Oxycorticosteroids Mg./24 Hr.		17-Ketosteroids Mg./24 Hr.	
1 Normal subjects (31)				
Male 15	1.25	1.35	10.9	9.6
Female 16	1.46		8.3	
2 Patients with active duodenal ulcer (43)				
Male 31	0.88	0.91	9.3	8.5
Female 12	1.00		5.3	
3 (*a*) 12 patients in group 2 during active symptoms	....	0.90	...	8.2
(*b*) The same 12 patients while symptom free	....	1.14	...	6.6

* These are the same patients (*a*) during periods of ulcer distress and (*b*) during periods of remission. They are also included in group 2.

2. The average 17-ketosteroid value for the ulcer patients is 8.5 mg. in a 24-hour urine output (males 9.8 mg. and females 5.3 mg.).

3. Of interest is the average steroid excretion of 12 ulcer patients during periods of remission as compared with periods of ulcer distress. It will be noted from table 2 that during active ulcer symptoms patients excreted an average of 0.9 mg. of 11-oxycorticosteroids in 24 hours. When these 12 patients were symptom free, months after the ulcer attack, they excreted on the average 1.14 mg. Variations in 11-oxycorticosteroid excretion are also statistically significant (table 3).

The average excretion of 17-ketosteroid was slightly higher during periods of ulcer distress (8.2 mg. during symptoms and 6.6 mg. during symptom-free intervals).

Comments.—In patients with active duodenal ulcer 11-oxycorticosteroid excretion is less than in normal healthy subjects. The difference is statistically significant. These data are presented to stimulate additional comparative studies not only for larger series of ulcer patients but also for patients with other chronic gastrointestinal diseases. The latter group of patients might also show similar low levels. We are studying this possibility now.

TABLE 3.—*Statistical Analysis of 11-Oxycorticosteroid Values for Significance*

Class	No.	Mean	S.D. Mean	Diff.	S.D. Diff.	t	P*
1 Normal male	15	1.2175	±0.0848	0.3653	±0.1104	3.31	<0.01
Ulcer male	31	0.8522	±0.0706	.....	.....	....	....
2 Normal female	16	1.4846	±0.1487	0.4821	±0.1780	2.71	0.01
Ulcer female	12	1.0025	±0.0978				
3 12 ulcer patients in and out of ulcer attacks	In 12 patients observed in and out of attacks, the mean difference was 0.2375 lower in attack than out. The standard deviation of this mean was 0.111, giving a t value of 2.14 and a P of <0.05.					2.14	<0.05

* Interpretation of P values: If P is 0.05 or <0.05, the result is statistically significant; if 0.01 or <0.01, statistically highly significant, and if >0.05, not statistically significant.

TREATMENT OF PATIENTS WITH HORMONES

Thus far we have treated two patients with cortisone (cases 1 and 2) and two with pituitary adrenocorticotropic hormone (cases 3 and 4).

CASE 1.—*History and Previous Course.*—Miss V. E., aged 33, had an ulcer history dating back to 1940. During the six years prior to the present observation (1943-1949) she had frequent relapses, remaining symptom free for only two to three months at a time. During the past two years (1947-1949) distress

recurred almost daily. For the last year it was more acute, so that the patient worked below her normal efficiency. During this period there was a weight loss of about 15 pounds (6.8 Kg.). Relief followed food and antacids for only one-half to one hour. Nocturnal distress was constant during the past six months, but there was no back pain. There was frequent nausea but no vomiting.

When we saw the patient in June 1949, she was started on conservative ambulatory ulcer management consisting of the usual bland foods, frequent feedings, antacids and antispasmodics. With more rest and reassurance she soon became symptom free and continued in remission (except for occasional mild distress, either during the day or night) for a period of approximately five months, when she had another relapse. More rigid ambulatory management failed, and hospitalization followed for a period of two weeks, with the patient on an hourly feeding schedule of milk and cream (which was gradually increased), frequent antacids, antispasmodics, aspiration, and stomach lavage at bedtime. The patient responded to therapy, but within six weeks after discharge she again had a relapse. On her return to the hospital (February 1950) she improved again, but the ulcer symptoms did not disappear completely.

Clinical and Laboratory Data.—Physical examination was essentially noncontributory except for moderate tenderness in the epigastrium and the right upper abdominal quadrant. Repeated cholecystography revealed a normally functioning gallbladder. The gastrointestinal roentgenologic study showed "a spasm of the duodenal bulb associated with a pocket of barium presenting the usual characteristics of an ulcer crater."

Results of all laboratory procedures were within normal limits. These included the following: complete blood counts, determination of nonprotein nitrogen, total proteins, albumin and globulin ratio, blood uric acid, cholesterol and cholesterol esters, alkaline phosphatase, sodium, potassium, sedimentation rate and eosinophil count (direct method). The urine examination, in addition to routine studies, included uric acid, creatinine and creatine determinations. A five hour glucose tolerance test was also within normal limits. The basal metabolic rate was —1 per cent. The electroencephalogram was also normal, as was the electrocardiogram. The urine 11-oxycorticosteroid level prior to cortisone administration was 0.9 mg. per 24-hour excretion on the first occasion and 1.68 on the second. The 17-ketosteroids were 10.1 mg. per 24-hour excretion on the first examination and 8.6 on the second. Gastric contents obtained by continuous suction during a seven hour nocturnal secretion study prior to cortisone therapy consisted of 497 cc. with free hydrochloric acid output of 386 mg.

Treatment and Course.—The patient received cortisone for 11 consecutive days. During the first two days the dosage was 100 mg. twice daily and from then on 100 mg. daily. A total of 1,300 mg. of cortisone was administered. The patient's response was remarkable during cortisone therapy. Not only did her ulcer symptoms completely disappear but she had a sense of well-being, stating, "I feel better than at any time during the last ten years." Appetite and weight increased. Prior to cortisone therapy she had considerable dysmenorrhea, but this condition has disappeared completely (nine months follow-up).

All examinations enumerated above were repeated on the morning of the sixth day of cortisone therapy and on the following morning after cortisone was discontinued. Significant changes were noted as follows:

1. Urine 11-oxycorticosteroids became moderately elevated during cortisone administration and fell to within normal limits shortly after the drug was discontinued. The highest value was 2.6 mg. per 24-hour excretion (on the sixth day of treatment). The 17-ketosteroids showed no significant change.

2. The seven-hour nocturnal gastric secretion (after cortisone was discontinued) was 486 cc. with 726 mg. of free hydrochloric acid (compared with 497 cc. of secretion and 386 mg. of free acid prior to treatment).

3. The roentgenologic study (on the third day after discontinuance of cortisone therapy) revealed persistence of a small ulcer crater in the central portion of the duodenal bulb in the same site as that demonstrated in previous examinations. It was smaller than it had been previously. There was no associated pylorospasm and little tenderness on pressure.

Comment.—Shortly after injections of cortisone were given, a symptom-free interval began in a patient who had previously been totally intractable to conservative ulcer management. One cannot be certain that all the improvement was due to cortisone, but the general well-being of the patient might certainly be credited to this hormone. Nine months after her discharge the patient is entirely symptom-free and is attending to her usual duties with normal efficiency. She had not been able to live with this degree of comfort for at least a year and a half before the cortisone treatment.

CASE 2.—*History and Previous Course.*—Mr. M. P., aged 52, had an ulcer history dating back to 1930. After hospitalization for five days in 1930 the patient was symptom free for six years. He failed to respond to ambulatory management during his second attack (in 1936), but with hospitalization he again became symptom free and remained well for one year. He had a mild hemorrhage in 1937 and again in 1946. Since 1946 he has had relapses annually every spring and fall.

When this patient was seen Jan. 17, 1950 he had had epigastric distress and continuous day and night pain for a period of three weeks, unresponsive to self medication consisting of hourly feedings and nonabsorbable antacids. He was hospitalized Jan. 21, 1950 and given small hourly feedings with antacids and antispasmodics, and gastric lavage at midnight. He failed to improve during a seven day stay and left the hospital against advice. Because of continuous distress he was readmitted Feb. 19, 1950. Food and antacids produced relief for only 15 to 30 minutes at a time. He experienced frequent nocturnal distress but had no back pain. There was no nausea or vomiting. The stools (normal color) gave a positive reaction to the benzidine test for occult blood.

Clinical and Laboratory Data.—Physical examination, routine laboratory studies and cholecystography were essentially noncontributory. Roentgenologic study of the upper part of the alimentary tract showed "a marked deformity with contracture of the duodenal bulb incident to scarring from an old duodenal ulcer. The marked deformity of the bulb was about the same as it had been when the patient was examined in 1946. Transit of the meal was normal for a three hour period, and the stomach emptied in this time. Palpation over the duodenal bulb elicited no pain. There was, however, some spasm of the bulb."

When the patient again failed to respond to hospital management he was advised to have a subtotal resection. The diagnosis was a posterior wall duodenal ulcer which had penetrated (or perforated) the pancreas. However, we decided to attempt cortisone therapy before resorting to surgical intervention.

The blood studies, urine studies and other examinations enumerated in the report on case 1 were again within normal limits on this patient. Gastric contents obtained by continuous suction during a seven-hour nocturnal secretion study amounted to 476 cc. with a free hydrochloric acid output of 908 mg. Test for 11-oxycorticosteroids showed 1.06 mg. per 24-hour urine volume during the first precortisone study and 1.1 mg. for the second; tests for 17-ketosteroids showed 7.3 mg. per 24-hour urine output during the first study and 7.6 for the second.

Treatment and Course.—As in case 1, this patient received cortisone for 11 consecutive days: 100 mg. twice daily for the first two days and once daily for nine days, a total of 1,300 mg. The patient failed to respond to treatment. He continued to have distress not unlike that which he experienced before he had received cortisone.

Significant changes were apparent in laboratory examinations made on the sixth day of cortisone therapy and on the morning after cortisone was discontinued. (All other determinations were within normal limits):

1. Urinary 11-oxycorticosteroids became moderately elevated during therapy and fell to normal limits shortly after cortisone was discontinued. The highest values were 3.5 mg. on the fourth day and 3.4 mg. on the seventh day. Values for 17-ketosteroids were also moderately elevated, reaching a peak of 12.4 mg. during the sixth day of therapy and remaining between 10 and 11.9 mg. throughout the remaining period of treatment, with a fall to precortisone levels on the second day after treatment was discontinued.

2. The eosinophil count dropped below 50 per cent of the precortisone level on the fifth day and remained below the 50 per cent level throughout the period of treatment.

3. After cortisone was discontinued the seven-hour nocturnal gastric secretion was 683 cc., with 1,995 mg. of free hydrochloric acid, compared with 476 cc. (with 908 mg.) in the precortisone period.

4. The serum alkaline phosphatase was moderately elevated.

The patient was subjected to subtotal resection three days after cortisone was discontinued (March 8, 1950). The surgeon reported that: "The first portion of the duodenum was decidedly deformed and so densely adherent to the head of the pancreas that it could not easily be dissected free. With a finger inside the duodenum, the examiner found a deep posterior ulcer about ¾ inch (2 cm.) distal to the pyloric ring, at which point there was also a high degree of obstruction. The ulcer had penetrated into the head of the pancreas, which formed the base of the ulcer. The liver, gallbladder, spleen and pancreas were grossly normal." Subtotal gastric resection was done. The patient made an uneventful recovery.

Comment.—This patient failed to respond to cortisone therapy; symptoms were neither aggravated nor improved. At surgical intervention, a long-standing, chronic posterior wall duodenal ulcer was found, which had penetrated deeply into the pancreas.

Case 3.—*History and Previous Course.*—Mr. W. P., aged 36, presented an ulcer history since 1937, with frequent relapses and short symptom-free intervals. He had had three episodes of melena and one of hematemesis. During the eight months prior to observation he had daily experienced epigastric pain which was only moderately relieved with food and antacids. Distress occurred every two hours during the night. There was no back pain and no nausea or vomiting. He had refused and never followed a routine ulcer regimen.

When we saw him Jan. 4, 1949 physical examination and routine laboratory tests revealed essentially normal conditions. Cholecystography showed a normally functioning gallbladder without any evidence of calculi. The roentgenologic study of the gastrointestinal tract demonstrated "a small barium-filled ulcer niche at the base of the bulb on the lesser curvature side, with a persistent deformity of the duodenal cap."

The patient refused to follow a restricted diet. Antacids, antispasmodics and discussion therapy failed to initiate a symptom-free interval. He refused hospitalization. After a year of procrastination, and after a period of three months of practically continuous distress day and night, he entered the hospital April 12, 1950, when our usual ulcer regimen was instituted: bed rest, hourly feedings of milk and cream, frequent antacids and antispasmodics, sedatives, vitamins, gastric aspiration and lavage at bedtime, and reassurance.

A repeat roentgenologic examination at this time showed "transient pylorospasm. No ulcer crater could be seen in the duodenal bulb when barium did fill this structure. Some mild scarring was well demonstrated on the roentgenograms. Three-hour study showed no disturbance in the gastric emptying or in the small bowel motility."

Treatment Regimen.—After seven days of hospital management the distress of the patient was less pronounced but was still present. It was our impression that the patient had a posterior wall duodenal ulcer which had penetrated (or perforated) the pancreas. A subtotal gastric resection was advised, but pituitary adrenocorticotropic therapy was instituted before the decision to resort to surgery. The drug was administered intramuscularly in a dosage of 100 mg. daily (33.3 mg. every eight hours). It was our intention to treat the patient daily for 12 consecutive days, but because his distress became more acute (even more acute than that experienced prior to his hospital admission) the regimen was discontinued after nine days.

The following examinations were made on the urine daily for five days prior to hormone therapy, daily during the nine days of treatment and daily for five days after the drug was discontinued: volume of 24-hour urine, 11-oxycorticosteroids, 17-ketosteroids, sodium, potassium, nitrogen, calcium, phosphorus, chlorides, uric acid, creatinine and creatine.

The following examinations were made on the blood twice before hormone treatment was instituted, on the morning of the sixth day of treatment and on the first and fourth mornings after treatment was discontinued: total proteins with albumin and globulin ratio, uric acid, alkaline and acid phosphatase, sodium, potassium, calcium, sodium chloride, phosphorus, cholesterol and cholesterol esters, fasting blood sugar and glutathione.

An eosinophil count was made daily throughout the period of study, as was also a routine blood count. In addition, the following tests were done once before and twice after hormone treatment: a five-hour glucose tolerance test; an electrocardiogram, an electroencephalogram and a basal metabolic rate determination. A seven-hour nocturnal gastric secretion study was done only once, before hormone therapy, the patient refusing the posthormone study.

Clinical Course.—During the first four days of pituitary adrenocorticotropic therapy, the symptoms were not unlike those experienced by the patient during the three days immediately preceding treatment, i. e., mild ulcer distress two or three times daily (about one hour after intake of food) and once during the night. However, on the fourth day of hormone therapy, in addition to the epigastric distress the patient had pain in the upper right abdominal quadrant. The epigastric pain became more acute, recurred much more frequently, lasted much longer and was not relieved by food and antacids, as it had been before treatment with the hormone was instituted. In addition the patient became "tired, very restless and sleepy," with a feeling of "exhaustion."

At first, the physical findings were not appreciably changed except for tenderness in the epigastrium and right upper quadrant. However, on the fifth day there was definite resistance and muscle spasm to the right of the midepigastrium. There was no nausea or vomiting. Hourly feedings of milk and cream with frequent administration of an aluminum hydroxide preparation were reinstituted, but symptoms continued unabated. At times, because of acute epigastric pain, morphine and atropine (in the usual dosage) had to be administered.

On the seventh day of therapy, freckling pigmentation was noted on the left side of the face and the right side of the neck. On the morning of the ninth day in spite of increasing "exhaustion" of the patient, the systolic blood pressure, which previously had ranged between 120 and 130 mm., increased to 150 mm. and the diastolic, previously between 70 and 80 mm., increased to 110 mm. The epigastric and right upper quadrant distress increased in severity. There developed an area of severe muscle spasm and exquisite tenderness to the right of the umbilicus. The symptoms and physical findings were those of impending perforation and localized peritonitis. The hormone was then discontinued (at the end of the ninth day of treatment).

Twenty-four hours after the discontinuation of hormone therapy the patient began to improve. The right upper quadrant distress disappeared, as did the tenderness and muscle spasm. The epigastric distress also subsided to the pretreatment level, with resultant relief of the patient's symptoms for short periods on feedings and antacids. The patient generally became more relaxed and began to regain his strength and sense of well-being. The blood pressure returned to normal levels, and the freckling pigmentation of the skin disappeared two weeks later.

Because ulcer distress continued a subtotal gastric resection was performed on the sixth day after pituitary adrenocorticotropic therapy was discontinued. "The duodenum was chronically thickened with some adhesions, the area of greatest thickening being about ½ inch (1.27 cm.) distal to the pyloric ring and close to the superior margin. When the stump of the duodenum was held open an ulcer almost 1 cm. in diameter was demonstrated on the posterosuperior wall attached to the top of the pancreas. Gastric resection was performed."

There was a decided response to administration of the hormone, as indicated by the following laboratory data:

1. The urinary excretion of 11-oxycorticosteroids and 17-ketosteroids increased appreciably throughout the period of hormone administration, the former reaching a peak of 8.7 mg. and the latter 55.8 mg. during the 24 hours of the sixth day.

2. The eosinophil count dropped to below the 50 per cent level 24 hours after therapy was instituted. Throughout the remaining eight days of therapy the eosinophil count ranged from zero to 14 (the latter only on one occasion).

3. The urine uric acid—creatinine ratio increased moderately.

4. Before therapy the serum albumin determination was 3.93 Gm. and the globulin 2.13 Gm. per 100 cc. (a ratio of 1.8 to 1). On the morning after the hormone was discontinued the serum albumin was 3.45 Gm. and the globulin 3.07 Gm. (a ratio of 1.12 to 1). On the morning of the fourth day after therapy was discontinued there was a definite reversal of the albumin-globulin ratio (albumin 2.6 Gm. and globulin 4.17 Gm., a ratio of 0.64 to 1). Fourteen days after treatment the serum albumin level was 3.94 Gm. and the globulin 3.07 Gm., a 1.3 to 1 ratio.

5. Changes noted in the blood and urine electrolytes will be reported elsewhere in detail. In general, it can be stated that the blood electrolyte values changed as would be expected.

Comment.—Symptomatically, this patient not only failed to respond to pituitary adrenocorticotropic hormone (100 mg. daily) but his ulcer was definitely aggravated during treatment. In addition, he had freckling pigmentation of the face and neck and a feeling of being "tired, restless, sleepy and exhausted." These symptoms completely disappeared 24 hours after hormone therapy was discontinued. The acute pain in the epigastrium also subsided, but moderate ulcer distress continued. The freckling pigmentation of the face and skin disappeared about two weeks after the hormone was discontinued.

As with our second patient who received cortisone, pituitary adrenocorticotropic therapy failed in the presence of a posterior wall duodenal ulcer which had previously penetrated (or perforated) the pancreas. Medical therapy had failed in both patients, and subtotal gastric resection was performed.

CASE 4.—*History and Previous Course.*—Mr. L. B., aged 30, had an ulcer history dating from 1945. From 1945 to 1948, although he was receiving ambulatory ulcer management (frequent feedings and antacids) his symptom-free intervals were never longer than two to three months. Food and antacids gave him temporary relief. In November 1948 he was hospitalized at another institution and for a period of one week was given hourly feedings of milk and cream and an aluminum hydroxide preparation. There was a great deal of difficulty at first in obtaining symptomatic relief. The physicians in charge resorted to feedings of milk and cream and amphojel® every hour at night for several nights before the patient finally became free of distress. It was the opinion of the gastroenterologist that "medical management would not accomplish much for him either now or in the future," and gastric resection and vagotomy were advised.

Immediately after discharge of the patient from the hospital his distress recurred, and he continued to have symptoms day and night for four consecutive months. Four months after he left the hospital his distress became less acute but still persisted.

When we saw this patient June 29, 1949 he had acute pain in the epigastrium radiating to the left upper abdominal quadrant, left lower axilla and upper midback. The pain became severer about one hour after feedings and also at about 6:00 a. m. The patient was awakened by pain every one to two hours during the night, and food gave him relief for about one hour. There was no nausea or vomiting.

Clinical and Laboratory Data.—Physical examination revealed essentially normal conditions except for tenderness in the epigastrium. Results of the usual gastrointestinal laboratory examinations were within normal limits. Roentgenologic study of the gastrointestinal tract showed "a prolonged and pronounced pylorospasm and spasm of the bulb. There was some tenderness and considerable deformity of the duodenal bulb. There was no definite crater. The five-hour study showed the stomach empty, with normal progress of the meal to the lower ileum." Hospitalization was refused. On an ulcer regimen with bed rest at home the patient became moderately improved but was not free from distress.

On May 1, 1950 acute pain developed in the epigastrium. Management at home failed to relieve the symptoms of the patient, who was hospitalized May 23, 1950. After five days the acute distress subsided somewhat. Cholecystography was normal. A repeat roentgenologic study of the gastrointestinal tract showed "thick and coarse mucosal folds chiefly in the prepyloric section. The duodenal bulb was found to be decidedly deformed, and there was extensive scarring from a chronic duodenal ulcer. There was no crater. Four hour gastric examination showed only a small residue of barium in the stomach. Most of the meal was in the ileum, and the motility was essentially normal."

It was our impression that the patient had a posterior wall duodenal ulcer which had penetrated (or perforated) the pancreas. A subtotal gastric resection was advised, but first we initiated hormone therapy. The laboratory examinations enumerated in case 3 were also done in this case.

Treatment and Course.—Because the symptoms in case 3 were aggravated during treatment, in case 4 we started treatment of the patient cautiously with smaller, more frequent doses: 15 mg. of pituitary adrenocorticotropic hormone every six hours daily for the first four consecutive days (60 mg. a day); 20 mg. every six hours daily for the next four days (80 mg. a day); 25 mg. every six hours daily during the next two days (100 mg. a day), and 33.3 mg. every eight hours (three times daily) during the last six days of therapy (100 mg. a day)—a total of 1,360 mg. during 16 consecutive days.

On the fifth day of hormone therapy the patient's condition began to improve. He discontinued antacid therapy and did not require feedings between meals, although he was asked to continue with them. His appetite and general well-being also improved. He volunteered the information that "this is the best I have felt for months." He was definitely improved, although he had a gnawing sensation after being without food for three or four hours. On the twelfth day even this gnawing sensation disappeared. He became completely symptom free. However, several days after discharge from the hospital his ulcer distress recurred.

In this patient the eosinophil count during therapy failed to show the consistent drop noted in the preceding patient. The count fluctuated from day to day and at times even reached the pretreatment levels. It should be noted, however, that during the first eight days of therapy the hormone was administered in only 15 to 20 mg. doses. (A 50 per cent drop in eosinophils is expected four to eight hours after administration of a 25 mg. dose.) When the drug was administered in 25 and 33.3 mg. doses the eosinophil count dropped somewhat, but it did not fall below 50 per cent of the pretreatment level as was the case with the first patient treated with pituitary adrenocorticotropic hormone. However, four hours after the patient received a 33.3 mg. injection (Thorn test) the eosinophils dropped to below 50 per cent of the pretreatment count (from 143 to 31 eosinophils).

The urinary 11-oxycorticosteroids and 17-ketosteroids rose moderately but definitely, indicating a response of the adrenals to hormonal stimulation. Blood uric acid and acid phosphatase levels dropped moderately, but the blood electrolytes failed to show the degree of changes noted in case 3. These will be reported later in detail. Towards the end of hormone therapy the serum albumin-globulin also tended to assume a 1:1 ratio, as it had in case 3. After treatment with pituitary adrenocorticotropic hormone was discontinued the albumin-globulin ratio returned to normal.

The blood pressure remained at the pretreatment level. No side effects were noted except for a puffiness of the face during the last several days of hormone administration. The face became fuller, taking on the so-called buffalo-type obesity described by Cushing.

Comment.—In our opinion this patient has a posterior wall duodenal ulcer which had previously penetrated (or perforated) the pancreas. Pituitary adrenocorticotropic hormone was given initially in smaller doses (15 mg. every six hours, i. e., 60 mg. a day) and was well tolerated when the dosage was gradually increased to 100 mg. a day. When larger dosages were reached the patient became completely symptom free. However, several days after discharge from the hospital ulcer distress recurred.

SUMMARY

1. Mann-Williamson dogs treated with cortisone lived (on the average) at least twice as long as the untreated control animals. The animals treated with pituitary adrenocorticotropic hormone (ACTH) also lived longer than the untreated animals but not as long as the cortisone-treated animals. However, the beneficial effect of cortisone, and to a lesser degree of pitu-

itary adrenocorticotropic hormone, is not specific. Similar results were obtained in another concurrent series of Mann-Williamson dogs treated orally with an extract prepared from urine of pregnant mares (uroanthelone, kutrol®).

2. Patients with duodenal ulcer, studied to date, have shown a trend toward lower urinary excretion of 11-oxycorticosteroids during periods of ulcer distress. This was statistically significant when compared to the excretion of normal subjects and of the same ulcer patients during symptom-free periods. These preliminary findings are presented to stimulate additional comparative studies in larger series of ulcer patients. Similar studies are now in progress to determine whether patients with other chronic gastrointestinal diseases (gastric ulcer, ulcerative colitis or regional ileitis) show similar changes.

3. Four patients with long-standing chronic duodenal ulcers, intractable to the usual hospital management, were treated with either cortisone or pituitary adrenocorticotropic hormone:

(*a*) One of the two patients treated with 100 mg. of cortisone daily failed to respond to treatment. At surgical intervention a posterior wall duodenal ulcer was found that had penetrated deeply (or perforated) the pancreas. This complication no doubt existed before cortisone therapy was instituted.

The second patient, similarly treated, became symptom-free during cortisone therapy. Nine months later she said, "I am feeling better than at any time during the last ten years" (of her ulcer history).

(*b*) One of two patients treated with 100 mg. of pituitary adrenocorticotropic hormone daily had severer ulcer pain and definitely became worse during therapy. The symptoms and physical observations were those of impending perforation. Not only was there greater severity of ulcer pain but in addition the patient became "tired, restless and sleepy" and had a feeling of extreme "exhaustion." Freckling pigmentation of the face and mild hypertension also developed. Hormone treatment was discontinued, and within 24 hours the ulcer distress subsided and the general condition of the patient improved. At surgical intervention it was found that a posterior wall duodenal ulcer had penetrated (or perforated) the pancreas—a complication that had apparently existed before pituitary adrenocorticotropic therapy was begun.

The other patient was started on a smaller dosage of the hormone (60 mg. daily) which was increased gradually until 100 mg. a day was administered. He began to improve on the fifth day of treatment and became completely symptom free. When higher dosages were reached he tolerated the drug well. No other side effects were noted, except that his face became fuller and took on the so-called buffalo-type contour described by Cushing. This manifestation disappeared when hormone therapy was discontinued. However, several days after discharge of the patient from the hospital his ulcer distress returned, with pains not unlike those he experienced prior to pituitary adrenocorticotropic therapy.

4. For the present, a conservative medical regimen is still the treatment of choice for patients with duodenal ulcer. This regimen consists of rest, frequent small feedings of bland foods, antacids, antispasmodics, sedatives, gastric aspiration and lavage when indicated, and reassurance. When such a regimen fails, one might in addition give cortisone or pregnant mare's urine extract orally (uroanthelone, kutrol®) before resorting to surgical measures. The Mann-Williamson animals treated with these agents lived longer than the untreated animals and, as a group, were in a state of excellent nutrition and greater vigor. In ulcer patients, on the basis of experience to date, pituitary adrenocorticotropic hormone should be used guardedly if at all.

ADDENDUM

We are indebted to Dr. Seymour Gray of Peter Bent Brigham Hospital for the following case history of a woman in whom, as in our first patient treated with pituitary adrenocorticotropic hormone, there developed such severe epigastric pain (while she was receiving initial doses of 25 mg. four times a day, or 100 mg. daily) that the drug had to be discontinued because of definite danger of perforation and localized peritonitis:

History and Examination.—A woman aged 66 entered the hospital with a history of a gastric ulcer, diagnosed and treated for two months in another hospital. The patient apparently had had the ulcer for about five years. She presented the classic symptoms of epigastric pain occurring several hours after meals and relieved by ingestion of food. The patient was awakened occasionally at night by the pain. Roentgenograms revealed a gastric ulcer on the lesser curvature of the stomach. Gastroscopy confirmed the diagnosis. The gastric ulcer could be seen clearly on the lesser curvature of the anterior wall. The ulcer was approximately 1 inch (2.54 cm.) in diameter and approximately ⅜ inch (0.95 cm.) in depth. The impression was gained that this was a benign lesion.

Treatment and Course.—The patient was treated with a regimen of ulcer management consisting of milk and cream and a preparation of aluminum hydroxide gel with magnesium trisilicate (gelusil®) and had a prompt response. Her symptoms cleared and she felt quite well. The ulcer management was then discontinued, except for the ulcer diet and frequent feedings of milk and cream. The patient remained essentially asymptomatic.

Pituitary adrenocorticotropic hormone was then administered in doses of 25 mg. four times a day. Within twenty-four hours the patient began to complain of a recurrence of her ulcer pain. She had sharp, gnawing, upper abdominal pain which was decidedly aggravated during the night and was associated with much flatulence and lower abdominal distention. After three days of hormone administration there was pronounced epigastric tenderness and a localized area of protective muscle spasm which had hitherto not been present. The gnawing epigastric ulcer distress still persisted. After five days of hormone therapy there appeared to be definite evidence of peritoneal irritation, as manifested by an area of severe muscle spasm and exquisite localized tenderness in the epigastrium. The patient complained bitterly of pain, which doubled her up on occasions. She felt that the pain was partly relieved when she drew up her legs.

On the sixth day of hormone administration it was believed that there was definite danger of perforation and localized peritonitis. The white blood cell count[12] had risen from 8,500 to 15,000 and the stools became guaiac positive, although there was no significant fall in the hematocrit. The patient consequently was placed on a regular regimen of milk, cream and aluminum hydroxide gel with magnesium trisilicate. This gave her partial relief, but she still complained of definite ulcer pain, particularly severe at night. The pain, tenderness and physical observations that suggested a localized peritoneal reaction remained unchanged. After ten days of administration of 100 mg. of the hormone a day, all medication was stopped. The roentgenograms revealed no change in the size of the ulcer, and there was no evidence of healing gastroscopically.

The patient was then given frequent feedings of milk and cream and Sippy powders. Within a few hours all her pain disappeared and she became essentially asymptomatic. Within 48 hours the localizing signs in the epigastric area had disappeared and the patient was quite comfortable. After several weeks a gastric resection was performed and the ulcer in the stomach was found to be perfectly benign.

12. In both of our patients treated with pituitary adrenocorticotropic hormone and in one of the two cortisone-treated patients (case 1, Miss V. E.) leukocytosis developed during therapy (D.J.S.).

ENERGY EXPENDED BY PATIENTS ON THE BEDPAN AND BEDSIDE COMMODE

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"I didn't mind the operation or anything at all about the hospital except the bedpan," is one of the commonest expressions heard from discharged patients. The bedpan as an important adjunct in the management of the bed patient had probably been used for many years previous to the issuance [1] of the American patent in 1877. It is apparent that its use was widespread at the time since it was mentioned in nursing manuals [2] and advertised in catalogs of surgical and hospital supply companies. Defecation on the bedpan is difficult and sometimes dangerous, and in addition to the psychological indignity imposed on the patient it subjects him to physiological discomfort and stress. Despite this, it has been universally used [3] partly through habit and partly because with certain types of cases it is obviously a necessity.

Fortunately there has been a recent tendency to advocate more extensive use of the bedside commode,[4] since it has been assumed that this imposes less strain on the patient in terms of energy expenditure. This situation notwithstanding, the physician who recommends the use of the commode is often considered radical, and the occasional death of a patient while using the conventional bedpan still is construed as an inevitable "act of Providence."

Despite the impression that the use of the bedpan imposes a greater strain on the cardiovascular and respiratory systems than does the use of the commode, there have been no objective studies which would indicate that it subjects the normal as well as the diseased person to an unfavorable stress or greater energy expenditure. Thomas and Harrison [5] in discussing the relationship of decrease in metabolism and bedrest, stated that "data are needed concerning the relation of defecation to this problem. The respective metabolic increments induced by using a bed pan and a bedside commode should be investigated."

Because of this and because there is evidence that prolonged bed rest is harmful and that the practice of early ambulation is beneficial in a wide variety of clinical states,[6] the present study was undertaken as one phase of a broader exploration to determine the energy cost of activities of daily living and selected occupational activities in normal persons as well as in patients with disease that requires their prolonged confinement to bed.

METHODS

The facility of measurement of oxygen consumption with the closed circuit metabolism apparatus during activity [7] and the use of such data as a measure of the energy cost of activity have already been established.[8] These methods using a 9 liter respirometer of the Benedict-Roth type have been adapted to the present study because they are simple and also the most universally applicable.

Patients were selected from the wards of the Fourth (New York University) Medical Division and the Physical Medicine and Rehabilitation Service of Bellevue Hospital. A total of 28 subjects was studied; 15 were cardiac patients and the remainder either normal or with other diseases as indicated in table 1. Some of the normal subjects were hospital personnel. At the time of study all the cardiac patients were compensated and on an adequate maintenance regimen. An attempt was made to match subjects in each group with regard to ranges of age, sex, weight and height. Diagnoses and other data pertaining to the subjects are listed in tables 1 and 2. These persons were all ambulant or semiambulant and had been required, on a physician's orders, to use the bedpan during a past or the current hospital admission. No subject was included in the series who presented evidence of musculoskeletal disability, thyroid disease or blood dyscrasia.

Early in the investigation it became apparent that there were serious obstacles to the study of patients during actual defecation. Not the least of these were psychogenic and temporal factors. It was therefore decided to have the subjects simulate the process as closely as possible by means of "bearing down" or performing Valsalva maneuvers, on both the bedpan and

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Dr. Charles F. Wilkinson Jr., director of the Fourth (New York University) Medical Division, Bellevue Hospital, gave us access to clinical material and Dr. Donald Mainland, professor of biostatistics, Department of Preventive Medicine, New York University College of Medicine, reviewed the statistical data.

Also aiding us in this study were Drs. J. Murray Steele, director of the Research Service, New York University Medical Division, Goldwater Memorial Hospital, Robert L. Levy, Department of Medicine, College of Physicians and Surgeons, Columbia University, and Clarence E. de la Chappelle, professor of medicine, New York University Post Graduate Medical School.

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TABLE 1.—*Occupation, Age, Sex and Diagnosis of Fifteen Cardiac and Thirteen Noncardiac Subjects*

Subject	Age	Sex	Occupation	Diagnosis * at Present Hospitalization
Group 1, Cardiacs				
A. S.	50	M	Tailor	Arteriosclerotic heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, old anterior wall myocardial infaret, acute posterior wall infaret, regular sinus rhythm, congestive heart failure, class IV E to III D
R. S.	47	M	Merchant mariner	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, acute anterior wall myocardial infaret, regular sinus rhythm, anginal syndrome, congestive heart failure, class IV E to III D
W. M.	49	M	Unemployed	Rheumatic heart disease, enlarged heart, mitral insufficiency, mitral stenosis, auricular fibrillation, acute pulmonary edema, class IV E to III C; hypertension, etiology?
A. P.	48	M	Bartender	Heart disease, etiology unknown (arteriosclerotic? syphilitic? hypertensive?), enlarged left ventricle, dilated aneurysmal aorta, aortic stenosis, aortic insufficiency, regular sinus rhythm, left bundle branch block, first degree auriculoventricular block, acute left ventricular failure, class IV E to II B; syphilis, late latent, treated
D. E.	51	M	Unemployed	Rheumatic heart disease, enlarged heart, mitral insufficiency, mitral stenosis, aortic insufficiency, aortic stenosis, auricular fibrillation, class III C; diabetes mellitus, mild
J. B.	33	M	Restaurant worker	Rheumatic heart disease, enlarged heart, mitral insufficiency, mitral stenosis, aortic insufficiency,? aortic stenosis, regular sinus tachycardia, class II D; subacute bacterial endocarditis, active, under treatment
L. R.	59	M	Unemployed	Hypertensive heart disease, slightly enlarged heart, regular sinus rhythm, class I A; status postoperative for gastroenterostomy, secondary to peptic ulcer; colitis, chronic, mild; renal calculus, staghorn type, right kidney
M. P.	65	F	Housewife	Heart disease, etiology unknown, enlarged left ventricle, enlarged right ventricle, enlarged left auricle, auricular fibrillation, class III C
W. B.	64	M	Electrician	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, valvular sclerosis, regular sinus rhythm, occasional auricular and ventricular premature contractions, class I B
F. W.	56	M	Cook	Arteriosclerotic heart disease, coronary sclerosis, myocardial fibrosis, acute myocardial infaret, regular sinus rhythm, class IV E to III C
A. G.	58	M	Unemployed	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, paroxysmal ventricular tachycardia, first degree auriculoventricular block, left bundle branch block, coronary insufficiency, class III C
S. R.	63	M	Unemployed	Arteriosclerotic and hypertensive heart disease, enlarged heart, dilated aorta, calcific aortic stenosis, coronary sclerosis, myocardial fibrosis, aortic insufficiency, acute left ventricular failure with pulmonary edema, class IV E to III C
M. G.	44	F	Housewife	Rheumatic heart disease, enlarged heart, mitral insufficiency, mitral stenosis, regular sinus rhythm, class II B
C. C.	65	M	Unemployed	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, congestive heart failure, right hydrothorax, class IV E to III C
Y. B.	62	M	Barber (unemployed)	Arteriosclerotic and hypertensive heart disease, enlarged heart, coronary sclerosis, myocardial fibrosis, sinus tachycardia, left ventricular failure, class IV E to III C; chronic bronchitis; chronic pulmonary fibrosis and emphysema
Group 2, Noncardiacs				
H. B.	31	M	Physician	No disease
R. T.	25	M	Laborer	Syphilis, late latent, untreated
E. G.	61	M	Unemployed	Laennec's cirrhosis with jaundice and edema
C. W.	47	M	Unemployed hospital attendant	Acute alcoholism; gastritis, acute, exogenous
F. D.	50	M	Printer	Rheumatoid arthritis, acute, active
C. P.	32	M	Electrician	Glomerulonephritis, acute, diffuse
W. W.	25	M	Unemployed actor	Diabetes mellitus
D. D.	20	F	Machine operator	Glomerulonephritis, acute, diffuse
K. B.	35	M	Physician	No disease
W. N.	34	M	Cab driver	Duodenal ulcer, active
L. J.	63	M	Unemployed	Hemochromatosis
F. G.	43	M	Physician	No disease
T. R.	30	M	Physician	No disease

* The cardiac diagnoses are given according to the nomenclature recommended by the New York Heart Association in their publication "Nomenclature and Criteria for Diagnosis of Disease of the Heart," New York, 1940. The classification by Roman numerals and capital letters refers to the functional capacity and therapeutic classification, respectively:

Functional Capacity

Class I.—Patients with a cardiac disorder without limitation of physical activity. Ordinary physical activity causes no discomfort.
Class II.—Patients with a cardiac disorder with slight to moderate limitation of physical activity. Ordinary physical activity causes discomfort.
Class III.—Patients with a cardiac disorder with moderate to great limitation of physical activity. Less than ordinary physical activity causes discomfort.
Class IV.—Patients with a cardiac disorder unable to carry on any physical activity without discomfort.

Therapeutic Classification

Class A.—Patients with a cardiac disorder whose ordinary physical activity needs no restriction.
Class B.—Patients with a cardiac disorder whose ordinary physical activity needs no restriction but who should be advised against unusually severe or competitive efforts.
Class C.—Patients with a cardiac disorder whose ordinary physical activity should be moderately restricted, and whose more strenuous habitual efforts should be discontinued.
Class D.—Patients with a cardiac disorder whose ordinary physical activity should be markedly restricted.
Class E.—Patients with a cardiac disorder who should be at complete rest or confined to bed.

the commode for at least two trials of each. The procedures were fully explained and demonstrated to each subject. Uncooperative patients and those who had difficulty in understanding what was required were excluded from the study.

The tests were conducted in a small, quiet room away from the ward, using a low hospital bed with an innerspring mattress at a height of 22 inches (56 cm.) from the floor. A conventional metal bedpan was utilized. The bedside commode used was at approximately bed height (i. e., the height of the seat was 18 inches [46 cm.] from the floor) and was constructed with a conventional toilet seat and a back with two arm rests for support of the patient. The bed as well as the commode were enclosed by ward screens, permitting privacy for the subject. The observer sat outside the screens noting the record of respiration on the recording drum of the respirometer. Frequent observations were discreetly made through a small opening in the screen to assure the performance of the various maneuvers in the prescribed manner.

TABLE 2.—*Summary of the Mean Values and Ranges for the Age, Weight, Height, Body Surface Area and Resting Metabolism of Fifteen Cardiac Subjects and Thirteen Noncardiac Subjects*

	Age, Yr.	Weight, Lb.	Height, In.	Body Surface Area, Sq. M.	Resting Metabolism,* Ml. O_2/Min.
15 Cardiacs (13 males, 2 females)					
Mean	53.6	148	64.0	1.72	267
Range	23-65	127-172	61.0-69.5	1.60-1.82	223-334
13 Noncardiacs (12 males, 1 female)					
Mean	38.6	156	66.75	1.81	251
Range	20-62	112-200	62.25-71.5	1.49-2.08	177-321
All subjects					
Mean	46.7	152	65.2	1.76	260
Range	20-65	112-200	61.0-71.5	1.49-2.08	177-334

* Determined with the patient at rest in the supine position and corrected to standard conditions of temperature and pressure.

The tests were performed in all instances approximately two hours after meals. At each session both a bedpan and a commode experiment were carried out as described below. A 15 to 20 minute rest period was allowed between the two procedures, and on successive days the order of the maneuvers was alternated. The sequence of experiments was such that each subject served as his own control for purposes of comparing the two activities.

During the tests, male patients were attired in pajamas and females in hospital gowns. In order to allow free movement of the patient, the connection between the mouthpiece and the respirometer was made with 10 foot (205 cm.) lengths of flexible rubber tubing. Conventional rubber mouthpieces and noseclips were used, and the patient held the metal three way valve with one hand to avoid displacement of the mouthpiece when changing position.

The subjects rested in bed for 15 minutes prior to the actual experiment. The noseclip was adjusted and checked for leaks; the mouthpiece was placed in position, and recording of oxygen consumption was begun while the subject was in the supine position. Resting oxygen consumption was recorded for a period of four to six minutes. When it was apparent that an equilibrium had been attained, a signal was given by the observer for the patient to begin one of the following two activities, during which time oxygen consumption was continuously recorded:

1. The patient (if a male) untied or unbuttoned his pajama pants, sat up, turned, slid off the bed and sat down on the commode seat adjacent to the bed. He remained seated and

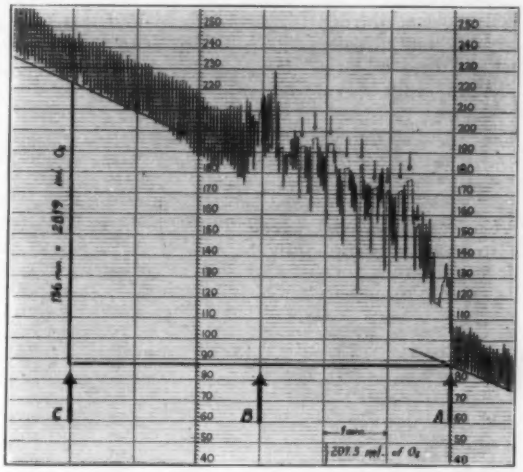

Fig. 1.—Photograph of a portion of the respirometer record showing oxygen consumption in cardiac subject A. P. while performing 10 Valsalva maneuvers (indicated by small arrows) on the bedpan. *A* indicates the start of the activity; *B*, the end of the activity and beginning of recovery, and *C*, the end of the three minute period of recovery.

performed 10 Valsalva maneuvers which simulated straining at stool. He then cleansed himself with toilet tissue and at a second signal from the observer pulled up his trousers and returned to bed, again assuming the supine position. The time between the two signals was three minutes.

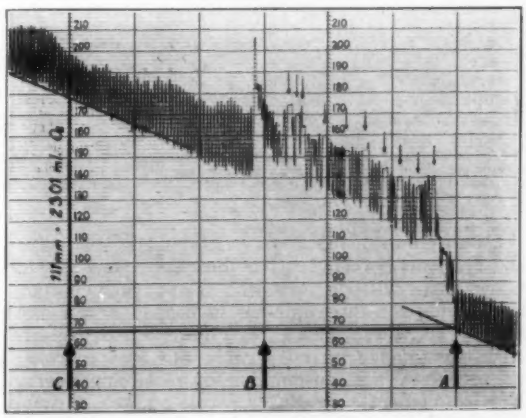

Fig. 2.—Same as figure 1, but with the cardiac subject, A. P., on the bedside commode. Note that oxygen consumption of the patient is 518 milliliters (uncorrected) greater on the bedpan (fig. 1) than on the commode.

2. The patient untied his pajama pants, drew them down, mounted the bedpan (which had been placed on the bed before the start of the test) and sat on it in the center of the bed. This position was selected since observations made on various services of this hospital indicated that this was the common practice. He was permitted to mount the bedpan in any manner he found easiest. While in this position, he performed

10 Valsalva maneuvers. He then cleansed himself with toilet tissue and at a second signal, three minutes after the first, resumed the supine position in bed and pushed the bedpan aside.

In all instances the recording of oxygen consumption of the patient in the supine position was continued for a four to six minute period after completion of the activity in order to determine the "recovery" oxygen consumption. It was found that the rate of oxygen consumption during the recovery period reached a steady state usually within one minute and always within three minutes. This recovery rate was almost identical with the preactivity resting rate.

TABLE 3.—*Comparison of the Mean Excess Oxygen Consumption for the Use of a Bedpan and a Commode* *

Subject	No. of Trials (N)	Mean of N Trials: Bedpan (B)	Mean of N Trials: Commode (C)	Difference (B − C)
Forty trials by 15 cardiac subjects				
W. B.	1	1,375	798	+ 577
A. S.	2	837	631	+ 206
R. S.	4	1,028	817	+ 211
W. M.	3	909	742	+ 167
A. P.	3	1,295	746	+ 549
D. E.	3	921	623	+ 298
L. B.	3	879	535	+ 344
J. B.	3	579	487	+ 92
M. P.	2	811	625	+ 186
F. W.	3	659	382	+ 277
A. G.	3	1,212	851	+ 361
S. R.	2	1,305	999	+ 306
M. G.	2	626	383	+ 243
C. C.	3	683	547	+ 136
Y. B.	2	1,901	803	+ 1,098
Mean for 15 subjects	..	1,001	665	+ 337
Thirty trials by 13 noncardiac subjects				
H. B.	2	1,224	1,056	+ 168
R. T.	2	790	550	+ 249
E. G.	4	1,398	998	+ 400
C. W.	3	628	518	+ 110
F. D.	3	797	545	+ 252
C. P.	2	789	560	+ 229
W. W.	2	758	674	+ 84
D. D.	2	520	335	+ 185
K. B.	2	904	517	+ 387
W. N.	2	1,129	577	+ 552
L. J.	2	1,796	986	+ 810
F. G.	2	841	458	+ 383
T. R.	2	858	678	+ 180
Mean for 13 subjects	..	958	646	+ 312

* In milliliters of oxygen at standard conditions of temperature and pressure in excess of the resting oxygen consumption for the six minute test period, which includes three minutes of activity and three minutes of recovery.

Data were calculated from the graphic records (figs. 1 and 2). Energy cost of each of the maneuvers was determined in the following manner: The oxygen consumption during the three minutes of bedpan or commode activity and three minutes of recovery was measured from the graphic record. From this was subtracted the resting oxygen consumption for a six minute period. This resulted in a figure for excess oxygen consumption for the six minutes activity and recovery period which was the energy cost of the particular maneuver under study. All gas values are corrected to standard conditions of temperature and pressure and expressed as milliliters of oxygen in excess of the resting oxygen consumption.

RESULTS

Early in the course of the study it became apparent that in all patients of the noncardiac as well as the cardiac group there was a consistently greater oxygen consumption for the performance of the outlined procedures on the bedpan than on the commode (table 3). It was also noted that there was no consistent effect of accommodation on serial performance, some subjects using more while others consumed less oxygen at successive trials. There frequently was considerable variation at succeeding trials in the same person. Furthermore, the two groups of subjects showed no significant difference in oxygen consumption with regard to the two respective maneuvers. This was anticipated, since the amount of work done in either activity was not great enough to incur a significant oxygen debt. On this basis the data for the entire series, including both cardiac and noncardiac subjects, were combined and statistically analyzed (table 4).

When the differences of the means in oxygen consumption of the entire series of subjects in the two categories of activity were analyzed, a statistically highly significant p value (< 0.001) was found.[9] There was a mean of 50.7 per cent greater increment of oxygen consumption above resting levels in the cardiac group while using the bedpan and a mean of 48.4 per cent for the noncardiac group.

TABLE 4.—*Statistical Analysis of the Data Comparing the Mean Excess Oxygen Consumption for the Use of a Bedpan and a Bedside Commode in Twenty-Eight Subjects*

Subjects	No.	Mean Difference (B − C) Ml. O₂	Standard Error of Mean Difference	t = Mean Difference / Standard Error	p Value *
Cardiac	15	+ 337	64.82	5.2	<0.001
Noncardiac	13	+ 312	56.51	5.5	<0.001
All subjects	28	+ 325	42.80	7.6	<0.001

Percentage mean excess oxygen consumption for use of bedpan over commode in

(1) 15 cardiac subjects: $\frac{337 \times 100}{665} = 50.7\%$

(2) 13 noncardiac subjects: $\frac{312 \times 100}{646} = 48.4\%$

* Computed according to Fisher and Yates.[9]

Blood pressure, pulse rate and electrocardiographic tracings taken before, during and after the two activities were subject to many extrinsic physical and emotional factors and resulted in extremely variable data. For these reasons it was deemed not feasible to study these routinely, especially since a cardiodynamic study of patients while performing Valsalva maneuvers has been reported by McGuire and others.[10] These workers found that during such straining there occurred decided changes in rate and rhythm of the heart, accompanied with sharp rises in intra-arterial and intrapleural pressures; they concluded that cardiac arrhythmias, vascular hemorrhage or pulmonary embolism were the mechanisms responsible for death of subjects while straining at stool.

COMMENT

While it is obvious to both the user and the observer that the use of the bedpan causes psychological trauma, irritation and often resentment, the results of this study indicate that it is an unphysiological procedure from the standpoint of energy cost. It would seem that the supported sitting or squatting position is the optimum posture for defecation. This is a truism which carries over from studies of primitive obstetric customs in

9. Fisher, R. A., and Yates, F.: Statistical Tables for Biological, Agricultural and Medical Research, New York, Hafner Publishing Company, 1948.

10. McGuire, J., and others: Bed Pan Deaths, Am. Pract. 1:23, 1950. Contribution a l'Étude de la ranimation dans les états de mort apparente,

which the squatting position was the postural choice for parturition. The conventional use of the bed pan in bed precludes the assumption of the customary posture of choice in defecation and hence makes this method undesirable. The commode, on the other hand, allows for the assumption of a supported, familiar posture and, aside from the subjective feelings of the patient, imposes on him less physiological stress.

It is recognized that a sudden severe straining or movement on either the bedpan or the commode can cause precipitous changes in blood pressure or decided rises in intrapleural and abdominal pressures which might induce serious cardiovascular accidents, but from both a postural and energy-conserving standpoint the strain necessary for defecation is lessened by the use of the commode or stool. Moreover, it is also recognized that for patients who are unconscious, disoriented, decidedly debilated or afflicted with severe physical disabilities, the use of the bedpan is a matter of practical necessity.

In a small series of three patients the use of the bedpan with the legs swung over the side of the bed and feet resting on a small stool resulted in less oxygen consumption than the use of the bedpan in the sitting position in bed. In this connection, the posture of the severely ill or debilitated patient for whom use of the commode is not feasible may be altered by use of pillows and adjustment of the bed to conform somewhat to the supported position, and in such instances this may be of decided benefit.

From postural considerations it might be assumed that had the supine position been used with the bedpan, the difference in energy cost would have been even greater between subjects on the bedpan and those on the bedside commode.

SUMMARY AND CONCLUSIONS

1. Oxygen consumption (in excess of resting) was determined by means of a closed circuit respirometer in a group of 13 noncardiac and a group of 15 compensated ambulant cardiac subjects while performing Valsalva maneuvers on the bedpan and on the bedside commode under standardized conditions.

2. There was no significant difference for each of the respective activities in the noncardiac and cardiac groups, but energy expenditure in terms of oxygen consumption above resting levels was consistently higher on the bedpan than on the commode (50.7 per cent for the cardiac group and 48.4 per cent for the noncardiac).

3. The difference in mean excess oxygen consumption for the use of a bedpan and a commode in all subjects was objectively and statistically highly significant.

Malignant Tumors of Bone.—Bone sarcoma has one main difference from other malignant lesions in that it most often affects relatively young persons. Its highest point of incidence is among persons of 15 to 20 years of age, according to statistics compiled by Christensen. Plans for cancer detection, therefore, must include this age group, if persons suffering from malignant tumors of bone are to benefit under any mass tumor detection program. Mayo Clinic statistics, recently compiled by Meyerding and Jackson, show that in 75 per cent of cases osteogenic sarcoma occurs about the knee. This localization to the lower end of the femur and the upper end of the tibia and fibula in three fourths of all cases of osteogenic sarcoma is extremely significant. It proves, in my opinion, that trauma, occurring as it does so frequently about the knee, is a definite inciting factor in the production of certain malignant bone tumors.—Mark B. Coventry, M.D., Differential Diagnosis of Malignant Bone Tumors, *Annals of Surgery*, November 1950.

Special Article

MANUAL ARTIFICIAL RESPIRATION

Comparison of Effectiveness of Various Methods on Apneic Normal Adults

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In the final analysis, the critical evaluation of manual methods of artificial respiration requires documented field tests, so that the practicality and adequacy of the various technics may be determined. However, the practical utilization of any manual resuscitation procedure must stem from results obtained under ideal or controlled experimental conditions, because of the numerous uncontrolled factors incident to field testing.

Anatomic considerations preclude the use of animals for this work. However, three types of human subjects can be utilized: (*a*) nonrigid corpses, immediately after death and before the onset of postmortem rigor, (*b*) conscious, normal subjects, trained to "voluntarily suspend respiration," or hyperventilate to the point of apnea, and (*c*) normal subjects rendered apneic by curare (or a curare-like preparation) and/or anesthetic agents. Patients rendered apneic by central nervous system pathology, such as anterior poliomyelitis, are inadequate, in our experience,[1] for the unequivocal evaluation of all manual maneuvers.

In a previous study [2] we compared the effectiveness of the various manual methods for artificial respiration by first using warm corpses and then subjects trained to suspend their respiration voluntarily. In the present study we have again compared the effectiveness of these methods on subjects with voluntary suspension of respiration and the same subjects when they were made apneic by curare-anesthesia agents.

METHODS

Eleven normal, healthy, adult males, ranging in age from 22 to 31 years and weighing 130 to 205 pounds (59 to 93 Kg.) were used. The history and physical examination of each showed freedom from cardiorespiratory pathology, a normal electrocardiogram and an essentially normal chest roentgenogram. The normal resting tidal air was determined, and, after proper indoctrination, the pulmonary ventilation effected by nine manual methods of artificial respiration was measured while the subject passively suspended respiration. All measurements were made on a standard basal metabolic rate spirometer (Sanborn waterless) via a rubber mouthpiece and with the usual nasal clip in place. Thereafter, each subject was premedicated with an adequate dose of atropine sulfate (0.60 or 1.20 mg.) either intravenously or intramuscularly, depending on the interval before anesthesia was begun. Then each subject was given a mixture containing 500 mg. of thiopental sodium and 6 cc. of standard *d*-tubocurarine chloride (a total of 120 units, or 18 mg. of the hydrated

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1. Unpublished results of experiments at Municipal Contagious Diseases Hospital, Chicago.

2. Gordon, A. S.; Fainer, D. C., and Ivy, A. C.: Artificial Respiration: A New Method and Comparative Study of Different Methods in Adults, J. A. M. A. this issue, p. 1455.

salt) in a total of 21 cc. of solution. Injection of the solution into one of the cubital veins required only 30 to 60 seconds. This depressed respiration to apnea, or near-apnea, and artificial respiration was then started via the breathing bag of the anesthesia machine, with the use of a cyclopropane-oxygen mixture. If respiration was not assisted and cyclopropane added, one could detect the diaphragm weakly attempting to initiate respiration. When the subject was completely apneic, a cuffed endotracheal tube was inserted into the trachea, with laryngoscopic visualization. There was no "bucking" of the subject in response to passage of the tube. No complications with reflexes or intubation occurred. The cuff that surrounded the tube was inflated with air to make the system gas tight.

The cyclopropane-oxygen mixture was again administered until complete relaxation and total apnea were attained. When the subject was in this state, the slightest pressure on the anesthesia bag created an exchange. The subjects were all examined for mechanical difficulties (such as endobronchial intubation). Each method of artificial respiration was then executed at a rate of 12 times per minute for periods exceeding one-half minute each. Between each method the subject was

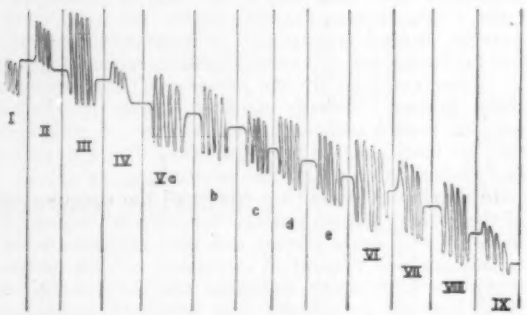

Fig. 1.—Sections of graphic results obtained on one subject (R.P.) with the basal metabolic rate spirometer with various methods of manual artificial respiration. I, Schafer (prone pressure); II, Emerson, (hip lift); III, Schafer-Emerson-Ivy (hip lift-prone pressure); IV, Emerson (hip roll); V, Schafer-Emerson-Ivy (hip roll-prone pressure) as accomplished by five different operators (*a*, *b*, *c*, *d* and *e*); VI, Silvester; VII, Drinker modification of Nielsen (arm lift-prone pressure); VIII, Nielsen (arm lift-scapular pressure), and IX, Eve (rocking).

ventilated with the anesthetic mixture to insure complete apnea and freedom from any muscular activity. This state was reached and maintained during the measurement of each maneuver. In no case was any muscular activity or spontaneous respiratory movement noted on either the graphs or the subjects during a test run. Pulmonary ventilation was again measured on a standard basal metabolic rate spirometer filled with oxygen; the spirometer was calibrated by displacement of varying known amounts of air into the apparatus. This was adapted directly to the endotracheal tube. A flutter valve was interposed between the subject and the spirometer, providing separate inspiratory and expiratory circuits, thus reducing the size of the dead air space. A soda lime cannister, provided in the spirometer, prevented accumulation of carbon dioxide.

At the conclusion of the experiment the subjects were given nitrous oxide-oxygen mixtures (80:20) until muscular activity was such as to indicate that there would be an adequacy of exchange without the endotracheal tube. This state was usually reached in about 35 minutes. In one case the tube was removed in approximately 40 minutes and the subject was unable to maintain his airway. After reintubation, nitrous oxide-oxygen mixtures were administered for an additional half-hour.

The only sequela noted was a sore throat of varying degree in several of the candidates. All walked out of the operating room within 2.5 hours after the initial curare–thiopental sodium injection. These comments regarding our fortuitous experiences in this work should not be misconstrued as statements of the simplicity and safety of the method. Our cognizance of the many hazards and possible complications was of inestimable value in the prevention of such eventualities. However, it must be emphasized that competence in anesthesiology and an accurately perfected experimental technic are prerequisites for such an undertaking.

METHODS OF ARTIFICIAL RESPIRATION STUDIED

The manual methods of resuscitation compared were those that are generally used or advocated today. Every method was applied to every subject during both the passive suspension phase and the curarization phase by the same operator (A. S. G.) except the Drinker modification of the Nielson method, which requires two operators. In this case, the assistant was always the same (F. R.). In this way, we hoped to obviate any variability that might have been introduced by using several persons, who may have performed the procedures in different manners.

The Eve rocking method [3] of activation of the inert diaphragm was included because (*a*) it was easily adapted to our procedure here, (*b*) it was previously included in our study on nonrigid corpses [2] and (*c*) it is commonly suggested for lay use as a "manual" method. Strictly speaking, however, the Eve method, or any method that necessitates the use of equipment—either provided or improvised—must always be considered a mechanical method. Nevertheless, the Eve tilt table was included in the study, despite the fact that it is not a manual method per se.

The manual methods performed were (*a*) Schafer (prone pressure),[4] Emerson (hip lift),[5] Emerson (hip roll),[2] Silvester,[6] Nielsen (arm lift-scapular pressure),[7]

3. Eve, F. C.: Activation of the Inert Diaphragm by a Gravity Method, Lancet **2**: 995 (Nov. 5) 1932. Killick, E. M., and Eve, F. C.: Physiologic Investigation of Rocking Method, Lancet **2**: 740 (Sept. 30) 1933. Eve, F. C.: Artificial Respiration Explained, Baltimore, Williams & Wilkins Company, 1947. Killick, E. M.; Leeds, M. B.; Sowell, E. M., and Crowden, G. P.: Principles of Artificial Respiration in First Aid, Lancet **2**: 897 (Oct. 21) 1939.

4. Schafer, E. A.: Artificial Respiration in Man, in the Harvey Lectures, 1907-1908, Philadelphia, J. B. Lippincott Company, 1909, pp. 223-243. Artificial Respiration, in American Red Cross First Aid Text Book, Philadelphia, The Blakiston Company, 1940, pp. 108-130. Burke, T.: Cheating Death Through Resuscitation, Nat. Safety News **32**: 20 (July) 1935. Schafer, E. A.: Artificial Respiration in Its Physiologic Aspect, J. A. M. A. **51**: 801 (Sept. 5) 1908.

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6. Silvester, H. R.: A New Method of Resuscitating Stillborn Children and of Restoring Persons Apparently Dead or Drowned, Brit. M. J. **2**: 576 (July 17) 1858.

7. Nielsen, H.: Method of Resuscitation, Ugesk. f. Laeger **94**: 1201 (Dec. 15) 1932. Lindhard, J.: Artificial Respiration According to Nielsen Method, Ugesk. f. Laeger **96**: 67 (Jan. 18) 1934. Gentles, H. W.: A New Method of Artificial Respiration, Nat. Safety News **32**: 34 (Aug.) 1935. MacLachlin, W.: The Holger-Nielsen Method of Resuscitation, Nat. Safety News **32**: 52 (Sept.) 1935. Manual of Artificial Respiration, Danish Red Cross, Holger Nielsen Committee, Hellerup, Otto Terrer, 1947, pp. 5-20.

8. Drinker, C. K., and Shaw, L. A.: A Modification of the Nielsen Method of Artificial Respiration, J. Indust. Hyg. & Toxicol. **17**: 243 (Nov.) 1935. King, B. G.: A Comparison of Pulmonary Ventilation in 3 Methods of Artificial Respiration, J. Indust. Hyg. & Toxicol. **20**: 576 (Nov.) 1938. Héderer, C.: A New Method of Artificial Respiration Combined with the Schafer Method in Order to Correct the Defects and Augment the Physiological Value, Bull. Acad. de méd. **113**: 632 (May 14) 1935. Héderer, C.: A New Method of Artificial Respiration Combined with Schafer Method, Bull. Acad. de méd. **114**: 178 (July 30) 1935. Héderer, C.: Method of Artificial Respiration, Arch. de méd. et pharm. nav. **125**: 371 (July-Sept.) 1935.

Drinker modification of Nielsen (arm lift-prone pressure),[8] Schafer-Emerson-Ivy (hip lift-prone pressure)[9] and Schafer-Emerson-Ivy (hip roll-prone pressure).[2] These methods have all been described and illustrated in a previous communication (fig. 1 in Gordon, Fainer and Ivy[2]).

RESULTS

Mechanical and anesthesia difficulties encountered in perfecting the technic invalidated the results obtained on the first subject. Thereafter, perfect relaxation and total apnea were secured, as indicated, in the remaining 10 subjects, and valid graphic tracings were shown by the method previously described (fig. 1).

On the basis of pulmonary exchange secured, the various methods can be divided into major groups. Those utilizing a "push and pull" maneuver produce active inspiration and active expiration, and, in those utilizing a "push" or a "pull" maneuver alone, only one half of the cycle is active and the other half is passive.[2]

The results obtained with passive suspension of respiration (table 1) and total apnea under curare-anesthesia (table 2) were completely corroboratory, although the former method achieved approximately 1.5 times as much pulmonary ventilation as the latter method. Table 3 reveals that all the methods in the "push" or "pull" group gave values approximating the normal resting tidal air in all 10 subjects, whereas the "push and pull" methods were approximately twice as efficacious. The "push and pull" manual methods include the Nielsen (arm lift-scapular pressure), Drinker modification of Nielsen (arm lift-prone pressure), Silvester method, hip lift-prone pressure and hip roll-prone pressure methods and effect approximately twice as much pulmonary ventilation as the prone pressure, hip lift or hip roll methods, which are "push" or "pull" manual methods. The Eve rocking method, a mechanical technic, yielded values intermediate between these two groups.

Certain correlations were noted between the body types of the subjects and the amount of pulmonary exchange elicited by the various methods of artificial respiration (fig. 2). Although in all apneic subjects the "push and pull" methods are superior to "push" or "pull" methods alone, the comparative values are not consistent in subjects of various body types. The values with the "push and pull" methods are disproportionately higher in tall persons than in those of medium or short stature. The Eve method maintains a relatively constant intermediate position, except that in the short stocky body type (only one case) it is as good as any manual method except the hip lift-prone pressure method. The results of hip lift-prone pressure method were consistently highest in all body types except in the tall, thin subject, in whom it was exceeded only by the Silvester method.

COMMENT

Previous evaluations of the efficacy of various manual methods for artificial respiration by other workers have been relatively inconclusive. This is because they (*a*) fail to consider all practical or generally advocated methods, (*b*) use only a few cases and/or (*c*) fail to evaluate pulmonary ventilation, per se, by providing controlled conditions, such as patency of the airway. However, in these studies for the first time the same group of investigators have appraised all the practical manual methods of resuscitation (as well as the Eve rocking method) under ideal, controlled, experimental conditions, for all three types of human subjects.

Pulmonary ventilation on (*a*) warm corpses, (*b*) normal healthy trained adults with passive suspension of respiration and (*c*) the same adults rendered totally apneic with curare-anesthesia are completely corroboratory. All results confirm the observation that, regardless of the type of subject, a "push and pull" maneuver is approximately twice as efficacious as a "push" or a "pull" method alone. The only difference noted is that the totally apneic subjects yield average values that are two times those of the warm corpses, whereas the results with passively suspended respiration are three times those obtained on the corpses (table 3).

Observations on these three types of human subjects have been questioned by some, with respect to their applicability to victims requiring resuscitation. Doubts are raised because of (*a*) early postmortem changes and absence of muscle tone and reflexes in corpses, (*b*) absolute muscular atony in curarized subjects and (*c*) the action of protective reflexes, as well as the difficulty in sustaining a state of passive suspension of respiration in conscious normal subjects. However, these studies indicate that the comparative values with

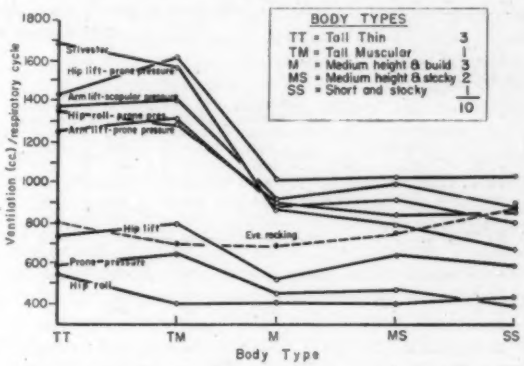

Fig. 2.—Efficacy of the various methods of artificial respiration with respect to specific body types in series of 10 totally apneic, normal, male adults.

any or all of these three types of subjects reveal the same effectiveness of pulmonary ventilation. It is essential that the corpses be used immediately after death, the curarized-anesthetized subjects be totally apneic and the passive normal subjects be trained adults.

The absolute values in any type of subject are not as important as the comparative values with the various manual methods—as long as the method in question results in adequate pulmonary ventilation. The actual values for pulmonary ventilation attained in victims requiring resuscitation probably are to be found between our values for the corpses and those for the totally apneic normal subjects. Those subjects that are most resuscitable probably simulate our totally apneic subjects, whereas victims that are at the limits of resuscitability are more apt to resemble the corpses. The values for the "push and pull" methods in the apneic subjects may, at first, appear excessive. However, these are actually a form of forced inspiration and forced expiration and should be significantly greater than the normal resting tidal air.

Despite the complete muscular atony of the apneic subject, respiratory graphs reveal that, even in the passive inspiratory phase of Schafer prone pressure, the

9. Gordon, Fainer and Ivy.[2] Thompson, T. C.: A Method of Artificial Respiration Especially Useful for Paralyzed Patients, J. A. M. A. **104**: 307 (Jan. 26) 1935.

thorax returns to its previous base level (fig. 1). This "restitution" recoil is primarily dependent on the structural design of the thoracic cage and its attachments. On the other hand, it was noted in the corpses [2] that latory system, whereas the greater values in normal passive subjects reflect the inability to completely suppress normal respiratory mechanisms and the desire to breathe.

TABLE 1.—*Results with Various Methods in Ten Normal, Healthy, Trained Adults with "Passive Suspension" of Respiration* *

		Push or Pull Only				Push and Pull					
Subject	Normal Resting Tidal Air	Schafer (Prone Pressure)	Emerson (Hip Lift)	Emerson (Hip Roll)	Eve (Rocking Method)	Nielsen (Arm Lift-Scapular Pressure)	Schafer-Nielsen-Drinker (Arm Lift-Prone Pressure)	Hip Roll-Prone Pressure	Hip Lift-Prone Pressure	Silvester	Body Type †
J. M.	408	844	736	872	901	1,466	1,344	915	1,208	1,351	SS
M. K.	529	1,201	1,208	844	1,273	1,230	1,473	1,687	2,264	1,239	M
R. P.	801	1,038	1,088	786	936	1,826	1,592	1,673	2,581	1,308	TM
W. V.	797	1,044	777	748	951	1,134	1,287	1,988	1,678	2,135	TT
A. T.	626	635	1,394	601	515	1,405	1,208	1,554	1,802	1,766	MS
G. S.	701	572	395	477	903	686	765	939	982	1,273	M
H. V.	...	739	704	376	1,010	1,619	1,652	1,160	1,569	2,263	TT
G. W.	429	849	535	376	715	1,316	1,502	980	861	1,158	M
F. S.	900	600	844	736	1,273	1,597	1,241	1,730	1,592	1,398	TT
J. S.	781	...	1,208	1,150	1,580	1,294	1,559	1,560	2,009	1,344	MS
Average	673.6	810.2	883.9	705.6	1,106.9	1,367.3	1,368.3	1,417.5	1,849.6	1,529.5	

* All methods performed by the same operator; all values expressed in cubic centimeters of air.
† Body Types: TT, tall thin subjects; TM, tall muscular; M, medium height and build; MS, medium height but stocky, and SS, short stocky.

TABLE 2.—*Results with Various Methods in Ten Normal, Healthy, Trained Adults in a State of Respiratory Arrest Induced with Curare and Anesthesia* *

		Push or Pull Only				Push and Pull					
Subject	Normal Resting Tidal Air	Schafer (Prone Pressure)	Emerson (Hip Lift)	Emerson (Hip Roll)	Eve (Rocking Method)	Nielsen (Arm Lift-Scapular Pressure)	Schafer-Nielsen-Drinker (Arm Lift-Prone Pressure)	Hip Roll-Prone Pressure	Hip Lift-Prone Pressure	Silvester	Body Type
J. M.	408	380	387	421	880	870	797	842	1,032	650	SS
M. K.	529	348	638	367	511	988	942	1,034	1,076	876	M
R. P.	801	649	787	409	690	1,397	1,208	1,383	1,615	1,563	TM
W. V.	797	652	853	535	737	1,333	1,377	1,317	1,607	1,706	TT
A. T.	626	580	731	307	720	1,150	1,018	1,001	1,191	911	MS
G. S.	701	461	445	295	787	897	690	725	814	797	M
H. V.	...	508	626	474	810	1,035	718	1,173	1,302	1,550	TT
G. W.	429	538	455	318	748	908	1,010	1,114	1,118	925	M
F. S.	900	488	704	621	856	1,707	1,615	1,564	1,325	1,701	TT
J. S.	781	342	528	393	773	807	800	671	856	669	MS
Average	673.6	500.6	635.4	445.1	751.2	1,107.6	1,027.5	1,053.8	1,199.6	1,145.5	

* All methods performed by the same operator; all values expressed in cubic centimeters of air.

TABLE 3.—*Comparison of Results of Various Methods in the Same Subject When Apneic and with Passive Suspension of Respiration and in Warm Nonrigid Corpses*

		Tidal Air, Cc.					
		Warm, Nonrigid Corpses		Totally Apneic Normal Adults †		Passive Suspension of Respiration †	
Methods *	No. of Cases	Average	Range	Average	Range	Average	Range
"Push or Pull"							
Schafer (prone pressure)	25	185	28- 471	500	342- 652	810	609-1,201
Emerson (hip roll)	8	155	71- 242	445	295- 621	705	376-1,150
Emerson (hip lift)	26	270	57- 605	635	445- 853	884	395-1,394
Average		200	.....	527	.....	800	.....
Eve rocking method (approx. 50 degree arc in each direction)	5	300	100- 704	751	690- 880	1,106	515-1,580
"Push and Pull"							
Silvester	26	520	150-1,106	1,145	650-1,795	1,529	1,158-2,263
Nielsen (arm lift-scapular pressure)	26	580	180-1,250	1,107	807-1,709	1,367	686-1,826
Drinker modification of Nielsen (arm lift-prone pressure)	26	575	100-1,371	1,027	690-1,615	1,368	765-1,652
Schafer-Emerson-Ivy (hip lift-prone pressure)	26	530	100-1,313	1,109	814-1,667	1,649	861-2,531
Schafer-Emerson-Ivy (hip roll-prone pressure)	8	537	371- 799	1,053	671-1,564	1,417	915-1,988
Average	..	548	.....	1,106	.....	1,466	.....

* With all methods, multiply by 12 to obtain minute volume.
† All values for 10 normal, healthy, male adults; average resting tidal air of 10 subjects equal to 674 cc.

restitution almost returned the chest to its resting base level (fig. 1 in Gordon, Fainer and Ivy [2]). Fixed, emphysematous, senile or deformed chests might fail to respond in this normal manner. The smaller values attained with warm corpses are probably due to total absence of reflex activity and a nonfunctioning circu-

Pask [10] concurs in that "there seems little doubt that the conscious subject is quite unsatisfactory for this type of experiment, as true passivity of the respiratory

10. Pask, E. A.: The Efficiency of Methods of Artificial Respiration, Medical Research Council, Royal Naval Personnel Research Committee, London, His Majesty's Stationery Office, 1946.

mechanism is unattainable." He studied two intubated subjects anesthetized with a thiopental sodium-ether combination and rendered apneic by forced ether inhalation.[11] In these subjects, he found that the Eve rocking method gave greater pulmonary ventilation than the Silvester, Schafer or hip lift methods. His values are comparable to those obtained in our study, with the exception of the Silvester Method. However, in referring to specific body types, it is observed that the short stocky subject in our results gives comparable values to those in these two cases.

The use of only two cases and the failure to use several of the "push and pull" methods make Pask's results inconclusive in the evaluation of manual artificial respiration and the Eve method. This is especially true in view of our observation that certain body types may give more favorable results with certain methods (fig. 2). Pask infers from oxygen consumption results "that Eve's rocking method may assist blood circulation." However, we do not feel that oxygen consumption alone is a true measure of the circulatory effects of manual artificial respiration or the Eve method. In the determination of the effect of artificial respiration on circulation, any method that depends on oxygen saturation must consider variable amounts of oxygen provided by the different methods. A purely physical method of measuring blood flow, or possibly the direct Fick principle, would be most desirable. However, measurements of blood flow were not included in our work because we were primarily concerned with pulmonary ventilation and could not justify the use of a more involved procedure in our subjects for this determination.

One of the major factors promoting the return of venous blood to the heart is the "sucking" action created by the negative intrathoracic pressure during inspiration. Therefore, any method creating such a condition should augment a failing circulation. All the "push and pull" technics accomplish this. The hip lift-prone pressure and hip roll-prone pressure should be additionally efficacious, since the body is in a head-down position during the inspiratory (sucking) phase and blood may tend to drain toward the heart.

Even in this comparatively small series (10 cases), there is a tendency to correlation between specific body types and the efficacy of pulmonary ventilation with certain manual maneuvers (table 2 and fig. 2).

The hip lift-prone pressure method was universally the most effective, except in the tall thin subject, in whom it was exceeded by the Silvester method (three cases). But the Silvester method was the poorest form of "push and pull" ventilation in the medium and short subjects. In fact, in the short stocky subject (one case) it was even exceeded by the Eve rocking method. However, this series is large enough only to permit inferences on this observation, and a much larger group would be necessary for statistically significant data. Figure 2 reveals the sharp delineation of the various methods into two groups—a "push and pull" and a "push" or "pull" alone, with the Eve rocking method intermediate.

The hip roll-prone pressure method and the Nielsen method (arm lift-scapular pressure) were tried by five operators on one subject so that the variability that might result from more or less instruction and training (fig. 1) might be appraised. Although the differences were not particularly significant, because of the large volumes of air moved (hip roll-prone pressure, range 1,083 to 1,283 cc.; Nielsen, range 1,007 to 1,397 cc.), it is of interest that the most experienced operator (A. S. G.) obtained the best results, with the other four following in the order of their experience with these manipulations. This, logically, emphasizes the value of adequate indoctrination and experience. We must stress, too, the need for proper performance of the hip roll technic. The knee, fist or hand of the operator must always be placed under the hip close to him. Then, when the distant hip is lifted, it is in effect, "rolled" onto the knee, fist or hand. This elevates most or all of the abdominal surface from the horizontal. Without this, inadequate ventilation will most surely result.

The general observation was made that the ease of manipulation was much greater in the apneic subjects in this work, and the corpses in the previous work, than in the conscious passive volunteers. This consideration is of importance in the evaluation of fatigue resulting from the methods, since under practical conditions the subject will more closely resemble one of the former flaccid types. The hip lift-prone pressure method is most fatiguing. However, it can be executed at least during the crucial first few minutes of resuscitation, and when the operator becomes tired he is in the position to continue with the easier hip roll-prone pressure. If prolonged resuscitation is necessary by a single operator, he can still continue to use the Schafer prone pressure alone during short rest periods.

The subjects were asked to evaluate the efficacy of the various methods subjectively during the passive suspension of respiration. The arm lift-scapular pressure and the hip lift-prone pressure were considered to create the subjective impression of the most pulmonary ventilation. Several persons volunteered the information that the arm lift-scapular pressure method caused moderate distress in their shoulders. One subject noted slight pain in his back with the hip lift and the hip roll. Further questioning revealed a previous back injury. The Silvester method was commented on favorably by some, but it must be remembered that these were conscious subjects, and the possibility of oropharyngeal occlusion of the airway by the tongue in the supine position was not present here.

For the sake of completeness, both the eponymic and functional names of the various methods have been included in this discussion. However, it is strongly recommended that those methods lending themselves easily to functional names be referred to by such names rather than by the name of the originator or proponents. Almost a century of use has thoroughly entrenched the name of Silvester as applied to his method. However, all the other methods discussed herein have more appropriate designations: prone pressure (Schafer), hip lift (Emerson), hip roll (Emerson), rocking (Eve), arm lift-scapular pressure (Nielsen), arm lift-prone pressure (Drinker modification of Nielsen), hip lift-prone pressure (Schafer-Emerson-Ivy) and hip roll-prone pressure (Schafer-Emerson-Ivy).

Numerous mechanical devices are now available for the accomplishment of pulmonary ventilation, and most of these are superior to manual methods in situations requiring prolonged or special administration. But the first few minutes are crucial in resuscitation, and reli-

11. Artificial Respiration: Manual and Mechanical Methods, Royal Naval Physiological Laboratory, London, His Majesty's Stationery Office, 1950.

ance on any such devices, which are not usually immediately available, can only lead to failures in attempts to restore respiration. A manual method, or mouth-to-mouth breathing, must always be used until an approved mechanical method is available.

SUMMARY AND CONCLUSIONS

1. Eight methods of manual artificial respiration and the Eve rocking method have been evaluated with respect to the amount of pulmonary ventilation obtained on a series of 11 totally apneic normal adults. The results are compared with those obtained in the same group during passive suspension of respiration and also to those obtained in a previous study by the same operators on nonrigid warm corpses.

2. Results reveal that relative values of the various methods are completely corroboratory, except that the ventilation accomplished on the totally apneic subjects was approximately two times that on the warm corpses, whereas in the subjects with passive suspension of respiration the values were approximately three times those of the corpses. All methods utilizing a "push and pull," thereby causing active inspiration and active expiration, were approximately two times as effective as the "push" or "pull" methods alone, which result in only one half of each cycle being active.

3. It is noted that certain methods are better in specific body types. But, in the final analysis, the hip lift-prone pressure method is generally most efficacious. However, the hip roll-prone pressure method is much easier for sustained operation. The Nielsen (arm lift-scapular pressure) method produces comparable amounts of ventilation but may predispose to injury of the shoulders (although this has not been previously reported).

4. Any and all mechanical devices must always be considered as adjuncts to, and not substitutes for, manual methods, since the first few minutes are crucial for resuscitation and such devices are not usually immediately available.

Radioactive Isotope Technics.—The nature of the radioactive isotope is such that it differs from its sister only in that it emits radiation and has a different atomic weight. Chemically it is no different. But it immediately becomes possible to determine the rate of absorption of various elements, such as iron, sodium, copper and iodine, in extremely small quantities or tracer doses, and to differentiate in the tissue by extremely sensitive means, the element that had been administered to the animal during previous hours, from the amount of that element which was already present. Soon several technics for their use in such studies were developed. There is the so-called in vivo technic, in which a labeled or radioactive material or compound is located and measured in the living animal by means of counters placed over various parts of the body; second, sections of tissues are placed on sensitive x-ray films, and autoradiographs obtained of the site of deposition of the element in that tissue; third, the sample of tissue, urine or blood from a subject or animal is measured in the test tube or crucible under the counter at various intervals after the administration of the radioactive material. It was thus possible to get a dynamic picture of metabolism. In addition to the stable isotopic tracer technic, which was limited in its application to a few elements such as hydrogen, carbon, oxygen or nitrogen, the tracer technic was now extended to all the elements in the periodic table and the sensitivity of the method was much greater than the sensitivity of the methods using heavy or stable isotopes.—John Hundale Lawrence, Clinical Use of Radioactive Isotopes, *Bulletin of the New York Academy of Medicine*, October 1950.

Clinical Notes, Suggestions and New Instruments

EPIDEMIC PAROTITIS COMPLICATED BY ACUTE SUPPURATIVE APPENDICITIS

Report of a Case

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A few cases of acute appendicitis following the onset of epidemic parotitis have been reported.[1] The majority appear to be well established cases of mumps in which acute appendicitis developed five to seven days after the onset of the initial disease. They are to be differentiated from the cases with postoperative parotitis.[2] The question is periodically raised whether acute appendicitis developing in cases of epidemic parotitis has more than a coincidental relationship.

Reports [1] of five cases of mumps complicated by acute appendicitis have been encountered. In the more recent reports reference to four similar cases,[3] the first of which is reputed to have been described by Simonin in 1903,[3a] has been made. Various writers have reviewed their cases of appendicitis following infectious disease.[4]

This case is presented to emphasize a possible, if only a coincidental, complication of mumps. Today a patient with mumps is considered by some to have a systemic disease,[5] and it is possible that the abdominal pain could initially be considered as a probable involvement of the pancreas.

This presentation is made, not to plead a causal relationship between mumps and acute appendicitis, but rather to stress the possible coincidence of the two conditions and to urge early diagnosis of the appendicitis.

REPORT OF CASE

C. S. T., a man aged 21, noted swelling of the right parotid gland on March 24, 1948. He was hospitalized on March 26. It was then noted that both parotid glands were tender and swollen. The history and physical examination were otherwise essentially noncontributory. On admission, his temperature was 101.2 F. at 1:45 a. m., but it returned to normal by 7:00 a. m. and remained normal for 48 hours. The admission laboratory tests showed a leukocyte count of 4,200, with 57 per cent neutrophils, 37 per cent lymphocytes, 2 per cent eosinophils and 4 per cent monocytes. He had a temperature of 102 F. and a headache on the evening of March 28. The next day he

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1. (*a*) Sandler, A. S., and Finne, B. A.: An Unusual Case of Epidemic Mumps Complicated by Gangrenous Appendicitis, Arch. Pediat. **49**: 175-177 (March) 1932. (*b*) Benassi, E.: Rara complicanza in un caso di parotite epidemica, Riforma med. **34**: 796-797 (Aug. 22) 1927. (*c*) Donnelly, J., and Oldham, W. B.: Mumps and Appendicitis, Brit. M. J. **1**: 98-99 (Jan. 21) 1933. (*d*) Seelye, W. B.: Epidemic Parotitis Complicated by Acute Appendicitis, Northwest Med. **34**: 44-45 (Feb.) 1935. (*e*) Sneierson, H.: Epidemic Parotitis (Mumps) and Acute Appendicitis, Am. J. Surg. **47**: 135-138 (Jan.) 1940.

2. Charlton, P. H.: Post-Operative Parotitis, Ann. Surg. **93**: 837-843 (April) 1931.

3. (*a*) Simonin (1903), cited by Sandler and Finne [1a]; Donnelly and Oldham [1c]; Seelye,[1d] and Sneierson.[1e] (*b*) Jaloquier (1909), cited by Sandler and Finne [1a]; Donnelly and Oldham [1c]; Seelye,[1d] and Sneierson.[1e] (*c*) Rosenau and Dunlap (1916), cited by Sandler and Finne [1a]; Donnelly and Oldham,[1c] and Seelye.[1d] (*d*) Gaudier and Swnynghidow (1925), cited by Sandler and Finne [1a]; Seelye,[1d] and Sneierson.[1e]

4. Finney, J. M. T., Jr.: Analysis of Complications and Deaths Occurring in Appendicitis, Am. J. Surg. **20**: 772-799 (June) 1933. Ladd, W. E., and Gross, R. E.: Abdominal Surgery of Infancy and Childhood, Philadelphia, W. B. Saunders Company, 1940, p. 455. Babcock, W. W., and others: Principles and Practice of Surgery, Philadelphia, Lea & Febiger, 1944, p. 1020. Bowers, W. F., and Shupe, L.: Acute Appendicitis: A Sequela of Typhoid Inoculation, Mil. Surgeon **90**: 413-418 (April) 1942. Hudson, H. W., Jr., and Chamberlain, J. W.: Acute Appendicitis in Childhood: Statistical Study of 848 Cases from Children's Hospital, Boston, J. Pediat. **15**: 408-425 (Sept.) 1939. Scott, H. W., Jr., and Ware, P. F.: Acute Appendicitis in Childhood, Arch. Surg. **50**: 258-268 (May) 1945. Lawrence, K. B., and Waring, G. W., Jr.: Acute Appendicitis Complicating the Acute Infectious Diseases of Childhood, New England J. Med. **241**: 1-6 (July 7) 1949.

5. Wesselhoeft, C.: Mumps, Medical Progress, New England J. Med. **226**: 530-534 (March 26) 1942.

complained of poor appetite and some abdominal discomfort. His temperature rose to 103 F. at 7:00 p. m. The parotid swelling had subsided; the abdomen was soft, and there were no positive findings. The leukocyte count was 6,000, with 49 per cent neutrophils, 42 per cent lymphocytes and 9 per cent monocytes.

His temperature was 100.4 F. at 3:00 a. m. on March 30 and was normal the rest of the day. He had a normal bowel movement. At 4:30 p. m. the abdominal pain returned. Examination revealed right lower quadrant tenderness, especially marked at McBurney's point, and tenderness on the right side by rectal examination. The leukocyte count was 16,700. A diagnosis of acute appendicitis was made, and an appendectomy was performed.

The operative report stated that there was a small amount of slightly cloudy fluid in the vicinity of the appendix, which was pointing down toward the pelvis. The appendix was described as being edematous, swollen and covered with fibrinopurulent exudate. There appeared to be an obstruction in the proximal third, and the base of the appendix was not inflamed.

The pathologist reported that the gross specimen consisted of an appendix 8.5 cm. in length and somewhat distended at the tip, with the distal third of the appendix measuring 1 cm. in diameter while the proximal half measured 0.5 cm. in diameter. The portions of appendix sectioned were the tip, middle and base.

Microscopic study of sections showed the presence of pus in the lumen with ulceration of the mucous membrane in many areas. There was a diffuse infiltration of all coats of the appendical wall by large numbers of neutrophils. There was marked edema of the submucosa, muscularis and serosal coat. The pathologist concluded that the patient had acute diffuse suppurative appendicitis.

The patient's subsequent hospital course was uneventful, and he was discharged April 3.

SUMMARY

A case of acute appendicitis developing on the sixth day following the onset of epidemic parotitis is presented. Reference is made to nine similar cases previously reported.

PERIARTERITIS OCCURRING DURING PROPYLTHIOURACIL THERAPY

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Reactions to propylthiouracil are uncommon but still occur, as evidenced by the reports of several authors, including Bartels.[1] Although periarteritis nodosa due to thiourea has been reported,[2] the following case is the first to show that propylthiouracil may cause fatal generalized periarteritis.

REPORT OF CASE

The patient, M. W., was first seen in the Roosevelt Hospital outpatient clinic in 1940, at which time she weighed 114 pounds (51.7 Kg.), had a blood pressure of 160/90 and a pulse rate of 100 with a regular sinus rhythm. When she was next seen, in March 1948, the blood pressure was 210/100, pulse rate 100, weight 106 pounds (48.1 Kg.), and an enlarged heart with a blowing systolic murmur at the apex was noted. Four months before entry the patient became hypersensitive and irritable after emotional trauma. One month before her entry to the Roosevelt Hospital it was noted in the clinic that her thyroid gland was palpable, and the basal metabolism rate was + 53 per cent. The patient was given 50 mg. of propylthiouracil four times daily; her pulse rate was 110 and her weight was 104 pounds (47.2 Kg.). The patient continued this medication for 10 days and then reduced the dose herself to one-half the recommended amount, because of gastric irritation. After an additional five days she stopped taking the drug altogether.

On the patient's return visit to the clinic fibrillation at a rate of 180 was noted. Immediate admission to the hospital was advised, and soon after the patient had been placed in the ward she was found to have a blood pressure of 130/60; the pulse was grossly irregular and the rate 136. She was an emaciated, elderly woman who appeared chronically ill, and had a coarse tremor of the hands. The eyes appeared to protrude, but this had been characteristic of the patient for 20 years prior to examination. The thyroid gland was barely palpable. The patient had a few rales of congestive failure at both lung bases. Examination of the heart revealed moderate enlargement, a blowing systolic murmur and auricular fibrillation. The patient had no evidence of peripheral edema, and reflexes were normal; there were no Babinski reflexes. The laboratory data revealed the patient had 12 Gm. of hemoglobin and 4,400 white blood cells, with 76 per cent polymorphonuclear neutrophils and 22 per cent lymphocytes. The blood cholesterol was 172 mg. The serologic reactions of the blood to the Kline exclusion test and Mazzini test were negative.

Bed rest was prescribed, and the patient was given digitalis and sedatives for the first few days in the hospital in an attempt at evaluation of the true degree of hyperthyroidism and cardiac failure. On the third hospital day the basal metabolic rate was + 25 per cent. Because of this pronounced drop in the basal metabolic rate (three basal metabolic rates in the clinic at the time of onset of therapy were + 53, + 59 and + 55 per cent) and because the history and signs and symptoms were not altogether typical of classic hyperthyroidism, no specific therapy was employed. Nine days later the basal metabolic rate was + 12 per cent. This did not persist, and further basal metabolic tests revealed a level of + 31 per cent. It was felt that the patient's age and condition made her a poor operative risk, so that continued medical therapy was indicated; she was again given propylthiouracil. The temperature of the patient was normal before the administration of propylthiouracil (50 mg. four times daily) but within the following 24 hours rose to 103.4 F. Diarrhea also developed, but no other abnormal signs were present. Approximately 36 hours after the administration of the drug the patient became incontinent and unable to care for herself. She had difficulty forming words, became irrational, showed a left facial paresis with weakness and had a Babinski reflex on the left side. As it was felt at this time that the patient was suffering from a cerebral vascular accident, a spinal tap was done, which revealed normal pressure, crystal clear fluid, no white cells, a protein level of 16 mg. per 100 cc., a colloidal gold reaction of 1111100000 and a negative Wassermann reaction. At that time the patient had a white blood cell count of 7,150, with 90 per cent polymorphonuclear neutrophils, 9 per cent lymphocytes and 1 per cent monocytes. On the fifth day of this episode it was noted that all the symptoms of fever, diarrhea and left hemiparesis had become apparent within 24 hours after the administration of the propylthiouracil; therefore treatment with this drug was stopped. Within 24 hours the patient's temperature was normal, the diarrhea had stopped, the Babinski reflex had disappeared, and she appeared greatly improved and became rational.

It was felt that the patient was sensitive to this drug; she was therefore allowed to recuperate for one week, during which time she had no symptoms and had a normal temperature. A test dose of 50 mg. of the drug was then given. Within 12 hours her temperature rose to 101.2 F., diarrhea developed and she had pronounced weakness and mental confusion. These symptoms disappeared after 24 hours had elapsed, and the patient continued asymptomatic until the time of discharge. Medication prescribed at this time consisted of sedatives and digitalis. Because she was a poor operative risk, her hyperthyroidism was not severe enough to warrant operation, and because her severe reaction to propylthiouracil had contraindicated that drug, it was hoped the patient's condition could be controlled with iodine on an outpatient basis.

The patient was followed in the clinic for two months, during which time she was asymptomatic. She was then inadvertently

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1. Bartels, E. C.: Agranulocytosis During Prophylthiouracil Therapy, Am. J. Med. 5: 48-52 (July) 1948.

2. Gibson, P. C., and Quinlan, J. T.: Periarteritis Nodosa in Thiourea Therapy, Lancet 2: 108-110 (July 23) 1945.

again given propylthiouracil, 50 mg. four times daily, six days before the second admission to the hospital. She had taken a total of 1,150 mg. of the drug before she was brought to the hospital in an unconscious condition, which had its onset two hours before admission. At this time the patient had a blood

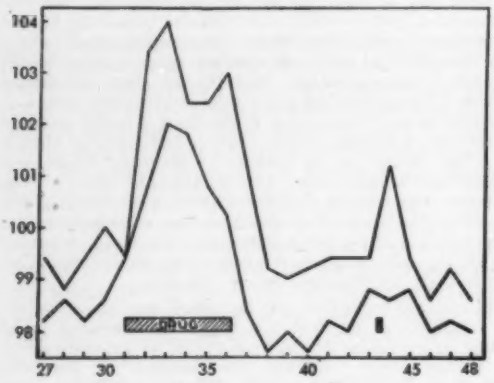

Fig. 1.—Minimum and maximum temperatures during the administration of propylthiouracil. The therapeutic dose was 200 mg. every 24 hours. The test dose was 50 mg. The ordinate represents rectal temperature (Fahrenheit) and the abscissa indicates day of hospitalization.

pressure of 165/82 with a pulse rate of 128, with regular sinus rhythm. The patient had evidence of a left cerebral vascular accident, left facial weakness and a left Babinski reflex, but a spinal tap revealed no abnormalities. Supportive therapy was

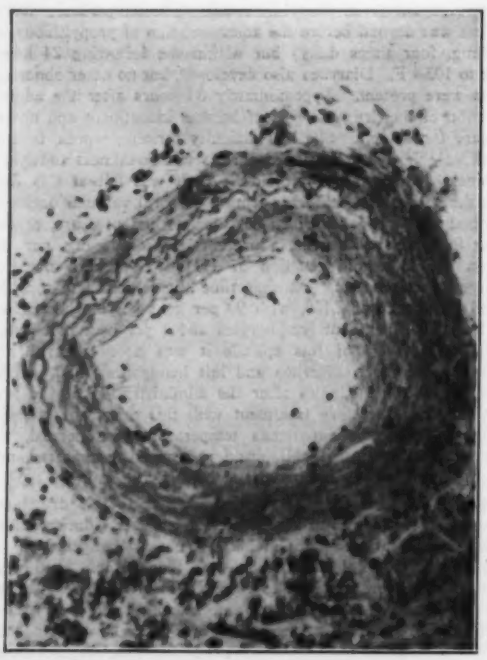

Fig. 2.—Section of the liver (× 500) showing the wall of a small artery with cellular infiltration, hyalin necrosis and edema.

given, but the patient remained in this condition without appreciable change and died six days after admission without having gained consciousness.

Postmortem examination revealed that the brain weighed 1,220 Gm. A recent thrombus occluded the lumen of the right middle cerebral artery. The thrombus was about 3 cm. in length. Further gross examination of the brain revealed no abnormality. The heart weighed 285 Gm., and the mitral valve measured 8 cm. in circumference; several of the chorda tendineae were thick and retracted. The free edge of the anterior leaflet was greatly thickened and calcified, and bone formation in one area was noted. Multiple sections of the myocardium revealed no area of infarction. The thyroid gland weighed 20 Gm. and was formed of small nodules, which revealed cystic degeneration on sections.

Dr. W. W. Brandes, pathologist of the Roosevelt Hospital, reported that microscopic examination of the organs revealed diffuse periarteritis. In the liver there was pronounced arteriolosclerosis, and the walls of the arterioles were swollen and edematous, with areas which were broken and granular in appearance. Hyalin necrosis of both arterioles and small capillaries, infiltration with lymphocytes, neutrophils and a few

Fig. 3.—Section of a small artery of the kidney (× 500) showing pronounced edema, necrosis and cellular infiltration.

eosinophils, terminal passive hyperemia and fatty metamorphosis with areas of vacuolization of the liver cells were observed. There was pronounced nephrosclerosis, with changes similar to those noted in the arterioles of the liver, in the slides of the kidney. The thyroid sections revealed fetal adenomas with colloid involution and many areas of hyperplasia and involution. Sections of the brain revealed edema and pericapillary hemorrhages; a few of the capillaries were distended with leukocytes. Similar vascular changes were noted in the pancreas. The heart showed a mild accumulation of lymphocytes, an occasional neutrophil and some eosinophils around some of the smaller vessels. The walls of some of these vessels were thickened, and the substance was granular, obliterating to some extent the normal architecture. There were no typical lesions of rheumatic involvement.

SUMMARY

A fatal case of a diffuse periarteritis due to propylthiouracil reaction, manifested by signs of a left hemiplegia, nausea, vomiting, fever, mental confusion and a normal white blood cell count, is reported.

428 West Fifty-Ninth Street.

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

HOWARD A. CARTER, *Secretary.*

ARTIFICIAL RESPIRATION

A New Method and a Comparative Study of Different Methods in Adults

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Chicago

Studies on the efficacy of the various methods of artificial respiration abound in the literature. However, a comparative study of a number of current methods by the same group of observers, using a significant number of nonrigid human corpses, is not available.

CHOICE OF SUBJECTS

Four types of subjects have been used for the study of the efficiency of various methods of artificial respiration: (*a*) human corpses prior to the occurrence of rigor mortis, (*b*) normal passive human subjects with "voluntarily suspended respirations," (*c*) deeply anesthetized and/or curarized animals, (*d*) human subjects deeply anesthetized or curarized, or apneic for some other reason. There have been investigations in which one or more of these methods have been used.[1] However, the results of different investigators and methods vary widely; the authors fail to consider all currently advocated manual and mechanical methods and usually report only a few cases.

Laboratory animals were not used by us for this study because the anatomy of a dog or that of a monkey renders results obtained equivocal. Since we desired to perform relatively many tests, the risks, though remote, associated with the deep anesthetization and/or curarization of otherwise normal human volunteers deterred us from using this type of subject. We decided to use subjects who were instructed to "voluntarily suspend their respiration" in some tests but not in many, because, as is realized by many investigators in this field, the results so obtained are equivocal in that such a subject is not comparable to a person requiring artificial respiration.[2] Therefore, for most of our tests we used recently deceased, warm corpses, prior to the onset of rigor mortis. We believe, as suggested by Eve,[3] that such a subject is most comparable to a person requiring artificial respiration, except perhaps the deeply anesthetized apneic person.

METHODS OF ARTIFICIAL RESPIRATION STUDIED

Readers interested in the history of the development of artificial respiration from early ages to the present day can find many excellent references[4] (fig. 1). The methods are usually classified as manual or mechanical. The term mechanical indicates that some sort of apparatus or device, even though only a board or stretcher, is used. Of the many manual methods proposed, only those in use today or believed to be efficacious were considered in this survey.

Manual Methods.—Silvester Method[5] (1858): The patient is placed in the supine position with the arms at the sides and forearms and hands on the lower part of the thorax. The arms are raised and straightened and extended over the subject's head to effect active inspiration and then returned to their original position, making pressure on the thorax to produce active expiration. The method has the disadvantage of frequent occlusion of the airway by the tongue's falling backward into the pharynx. Ribs have been fractured by the exertion of too much pressure.[6]

Schafer (Prone Pressure) Method[7] (1903): The patient is placed in the prone position with arms extended and face to one side. Pressure is exerted with the hands close together on the lower portion of the thorax. The pressure on the thorax causes active expiration, and inspiration occurs passively as the result of elastic recoil. The maneuver requires little muscular exertion by the operator. This is the most widely used method because of its simplicity.

Nielsen Method[8] (1932): The patient is placed in the prone position with his hands under his forehead. Several slaps are administered between the shoulder blades to force the tongue out of the pharynx. The elbows are grasped and raised to cause active inspiration; they are then released, and pressure is exerted over both scapulas to produce active expiration. Undue pressure may fracture the ribs.[9]

Schafer-Nielsen-Drinker (Modification of Nielsen) Method[10] (1935): The patient is placed in the Nielsen position. One operator performs the prone pressure procedure of the Schafer method while another operator alternately raises the elbows or arms. Drinker thus eliminates the pressure exerted over the scapular area in the Nielsen method, which he believes may cause fractures of the ribs. At the same time it retains the well

Assisted in part by a grant from the American Red Cross.

From the Department of Clinical Science, University of Illinois College of Medicine, Chicago.

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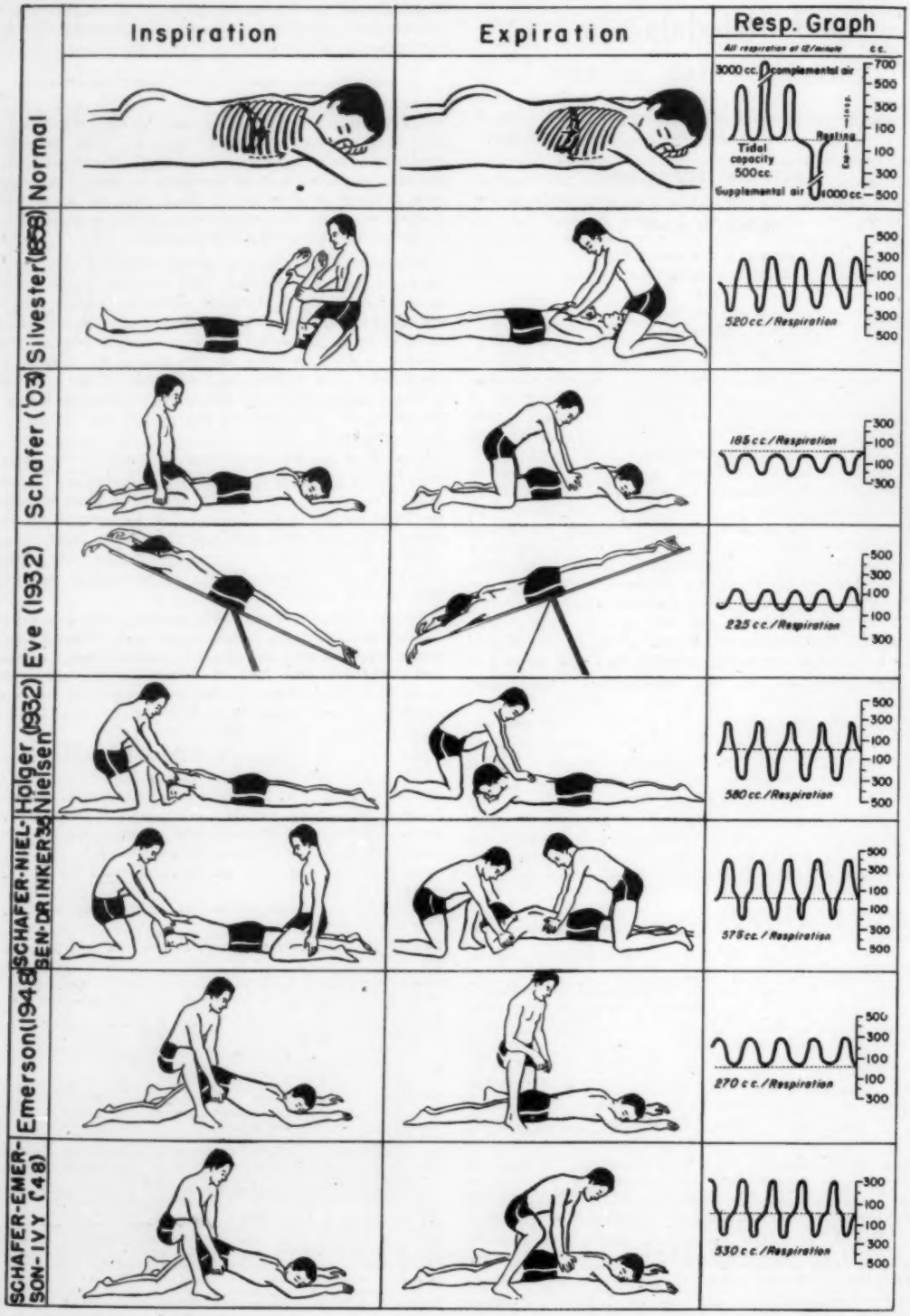

Fig. 1.—Inspiratory and expiratory phases of normal respiration, Eve rocking method and manual methods of artificial respiration with pneumographs produced by each.

known features of the Schafer method. Drinker was the first in this country to suggest this modification, although he was preceded a few months by Héderer in France.[11]

Emerson Method[12] (1948): Mr. John H. Emerson has proposed that the hips be lifted and lowered with the patient in the position of the prone pressure method. Raising the hips several inches causes active inspiration because of descent of the inert diaphragm and hyperextension of the spine (as verified by us fluoroscopically and radiographically). Lowering of the hips results in passive expiration. Mechanical devices are also available for executing this method.[13]

Schafer-Emerson-Ivy (Hip Lift-Prone Pressure) Method: With the patient prone, this method alternates the lifting and lowering of the hips (as in the Emerson method) with pressure exerted on the lower part of the thorax (as in the Schafer method). Early muscular exhaustion may be avoided by the use of a piece of cloth, a shirt or a belt, passed beneath the hips, so that the lifting may be conducted by one or two persons while another carries on the prone pressure maneuver. Thompson[14] in 1935 reported the use of this hip lift-prone pressure method in an 18 year old victim of acute paralytic poliomyelitis. The victim was gasping, cyanotic and unconscious when artificial respiration was begun. The Schafer method failed to produce adequate ventilation, and the paralysis reduced elastic recoil of the chest so that it remained in relative expiration. Hip Life-Prone Pressure resuscitation was used for eight hours and kept the patient semiconscious and ventilated until a respirator was secured. The victim recovered.

Hip Roll-Prone Pressure Method: Subsequent to the completion of the major portion of this study, a modification of the hip-lifting technic was suggested. In order to reduce the fatigue incident to lifting the hips, it appeared that elevation of only one hip would produce active inspiration with less effort. In effect the victim is grasped at the distant hip and "rolled" onto the rescuer's knee. This can be accomplished alone or in conjunction with Schafer prone pressure.

Mechanical Methods.—Eve (Rocking) Method[15] (1932): The patient is placed in the prone position and is rocked in a head-down and then feet-down position. Unlike the manual methods, the rocking method depends solely on the up and down motion of the diaphragm produced by the movements of the abdominal viscera during rocking.

Automatic Intermittent Positive Pressure: This method expands the chest by intermittently introducing air or a gas mixture under pressure (up to 20 cm. of water or 14.7 mm. of mercury in this work) into the upper respiratory passage via a face mask. A Burns valve[16] was used for this purpose by us, though there are other good positive pressure devices.

Alternating Negative and Positive Pressure (Suck and Blow): We used several devices that provided a positive pressure of + 14 mm. of mercury and a negative pressure of approximately −9 mm. of mercury via a face mask.

METHODS FOR RECORDING VOLUME OF PULMONARY VENTILATION

The efficacy of an acceptable method for artificial respiration depends first and foremost on the speed with which it may be applied to the patient after he is found; second, on the relative adequacy of the volume of pulmonary ventilation it produces; third, on whether it has a beneficial, indifferent or harmful effect on cardiac output and cerebral blood flow; fourth, whether it tends to open or close the airways; fifth, on its ease of application; sixth, whether it predisposes to regurgitation and aspiration of stomach contents, and seventh, on whether it is harmful to the lungs or exposes to dislocation of the shoulder or fracture of the ribs. In the major portion of this study, we were interested in the second factor, namely, the amount of pulmonary ventilation really obtained by the various methods.

With the manual methods and the rocking method of Eve, the minute volume of air exchange was measured by having the corpse inspire and expire into a carefully balanced graphically recording calibrated spirometer. With the mechanical methods, a very sensitive and accurate flow meter was used to record the volume of air exchange. The volume recorded by the spirometer was cross checked through the flow meter. However, the small inertia factor in the latter may have resulted in slight reduction of the mechanical values obtained. The dial of the flow meter was modified so that a kymographic record could be made of the amount of air exchanged with each respiratory movement.

For the unequivocal comparison of the amount of pulmonary ventilation produced by the different methods, we kept the airway open by introducing and using a McGill endotracheal tube with an inflatable cuff. This yielded an air-tight fit, reliable results and an ideal airway.

We also used during this study an ordinary anesthesia mask, which was attached to the recording devices. In some cases leakage occurred around the mask, and it was not easy to keep the chin in the mask during the various maneuvers; the results on the volume of respiration were therefore inaccurate. Subsequently, we used a full face gas mask with an inner rubber flap to insure against leakage with positive pressure. This mask supported the chin, kept the mandible elevated and prevented the tongue from falling into the oropharynx. Under the practical conditions of resuscitation one is not concerned with a small amount of leakage, but we were anxious to prevent leakage because we were measuring the minute volume of pulmonary ventilation.

To simulate natural, practical conditions as closely as possible and to allow the mandible free movement, an additional method was used in which the nostrils were closed with a clip and the lips with a mouth piece. The mouth piece was devised with a central opening 1 inch (2.5 cm.) in diameter surrounded by a gingival and external flange which could be tightened on the lips, yiending an air-tight system when the central opening was attached to the spirometer or flow meter.

GENERAL PROCEDURE

A day and night call system was arranged with the hospital to provide prompt notice of a preterminal patient. All cases of known preterminal pulmonary pathology were excluded. Otherwise the warm corpses represented a random sampling of the adult male and female deaths at the hospital.

We decided to make all tests within one hour after cessation of the heart beat. However, it was found that in certain corpses rigor mortis started to develop within an hour; the data on these cases were excluded. It was also found that in some corpses rigor mortis did not develop for much longer than an hour and hence could be used for study for a longer period. However, the data we report for comparison includes only data that were obtained within 90 minutes, mostly within 60 minutes, after death, and considerably before the onset of rigor mortis. Calls were answered for over 200 cases, but the data for only 109 are submitted in this report. The others were eliminated for various reasons, such as too rapid onset of rigor mortis, tuberculosis, arthritis, deformities and occlusion of the tracheobroncheal tree by dense mucus, detritus or tumors.

It was not possible, of course, to rule out corpses with some pulmonary edema, passive congestion, bronchopneumonia and collections of mucous secretion. Such conditions in a corpse probably decreased the volume of pulmonary ventilation as compared with a corpse with completely clear lungs, but each corpse was exposed to an entire group of manual or mechanical methods in a regular order and under the same conditions; hence the comparative values are unequivocal. (Indeed, the results obtained on corpses with mild degrees of lung pathology might be more applicable to drowned persons). Within a given series each manual or mechanical method of artificial respiration was used on each corpse. The various methods were kept in a definite sequence and rotated according to a fixed schedule, so that each method was applied in turn after death an equal number of times.

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RESULTS

Comparison of Manual Methods and the Rocking Method.—Airway with Endotracheal Intubation: Table 1 shows that the various manual methods and the rocking method of Eve may be divided into two groups. One group yields approximately twice as much ventilation as the other.

The manual methods which are designed to assist actively both inspiration and expiration produce twice as much ventilation as those that do not. In other words, it is not enough to compress actively the chest to get air out; it is also necessary to expand actively the chest to get air in. The double activity may be referred to as "push and pull." This point is shown clearly in the pneumograms (fig. 1) made of the respiratory cycle from the spirometer records. Lifting the hips, as in the Emerson method, causes an active inspiration and a passive expiration of approximately the same amount. In the Schafer prone pressure method the converse is true, since the active expiration is followed by a passive inspiration of approximately the same volume. The "push and pull" methods, such as the hip lift-prone pressure method of Schafer, Emerson and Ivy, consist of the cyclic sequence of (*a*) active inspiration, (*b*) passive expiration, (*c*) active expiration and (*d*) passive inspiration, and approximately twice as much ventilation occurs as with a maneuver which includes only half of the sequence.

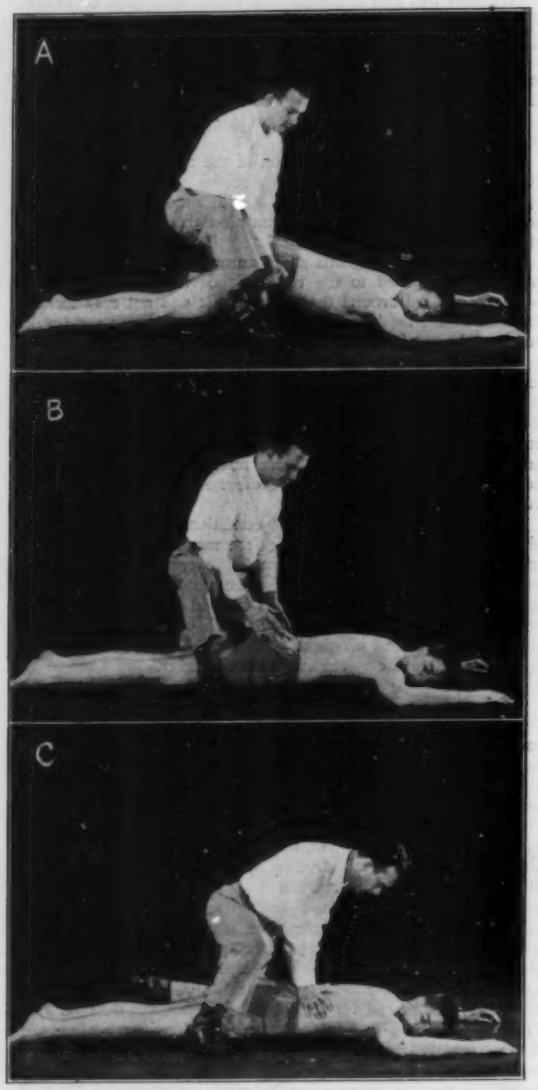

Fig. 2.—Schafer-Emerson-Ivy hip lift-prone pressure method from optimum Schafer position. *A*, elevation of hips to cause active inspiration. *B*, replacing hips after active inspiration and preparing to execute prone pressure. *C*, prone pressure over floating ribs to cause active expiration.

The values in table 1 may be compared with the values for tidal air and minute volume for the average, healthy, normal, living adult subject, which are 500 cc. and 6,000 cc. per minute at rest,[17] respectively. The air exchange of 185 cc. obtained by the Schafer method is adequate for the minimal tidal air for resuscitation proposed by Swann,[18] namely, 2.5 cc. per kilogram of body weight, or 175 cc. for a person weighing 70 Kg., but a much larger tidal air is preferable.

Since the air exchange obtained with the Eve method depends on the excursion of the diaphragm which is dependent on the range of movement of the viscera produced by gravity, the air exchange during one respiratory cycle will depend on the arc through which the patient is rocked.[19] Five warm corpses were used to check this supposition, since it has been proposed by some that rocking should be first through an arc of 50 degrees, then 40 degrees and, finally, maintained at an arc of 30 degrees. Rocking at a rate of 12 times per minute, we obtained the following minute volumes of air exchange: at an arc of 30 degrees, 115 cc., or a minute volume of 1,380 cc.; at 40 degrees, 210 cc., or a minute volume of 2,520 cc., and at 50 degrees, 300 cc., or a minute volume of 3,600 cc. We confirmed the observations of Pask [2b] and Gibbens [11] also, in that we found that the "jerk," instead of a smooth change, at the end of each "swing" increased the ventilation slightly as might be expected.

TABLE 1.—*Results Obtained with Manual Methods and the Rocking Method in Twenty-Six Warm Human Corpses (Endotracheal Airway)*

Procedure	Single Respiratory Cycle: Average, Cc.	Single Respiratory Cycle: Range, Cc.	Methods Compared, % *	Minute Volume, Cc., Rate 12/Min.
Prone rocking (Eve) †	225	50-572	42	2,700
Hip lift-prone pressure (Emerson) ‡	270	57-695	51	3,240
Hip lift-prone pressure (Schafer)	185	27-471	35	2,220
Hip lift-prone pressure (Schafer-Emerson-Ivy)	530	100-1,313	100	6,360
Arm lift-scapular pressure (Nielsen)	530	180-1,250	100	6,900
Arm lift-prone pressure (Schafer-Nielsen-Drinker)	575	100-1,371	108	6,900
Supine-arm lift-chest pressure (Silvester)	520	150-1,166	98	6,240

* The hip lift-prone pressure method is equated as 100 per cent.
† Rocked through an arc of 40 degrees 12 times per minute; at 50 degrees the figure is 300 cc., or a minute volume of 3,600 cc. Thus for the Eve method to produce an exchange equal to that of the "push and pull" methods it would theoretically have to be conducted at a rate of 20 per minute; but as the rate is increased appreciably above 12 per minute the air exchange for a single cycle decreases.
‡ Hips elevated 3 to 4 inches 12 times per minute.

TABLE 2.—*Hip Lift and Roll Technics; Comparative Results on Eight Warm Corpses (Endotracheal Airway)*

Procedure	Single Respiratory Cycle: Average, Cc.	Single Respiratory Cycle: Range, Cc.	Methods Compared, % *	Minute Volume, Cc., Rate 12/Min.
Hip lift †	330	171-422	47	3,960
Hip roll	155	71-242	22	1,860
Hip lift-prone pressure	704	476-1,042	100	8,448
Hip roll-prone pressure	537	371-709	76	6,444
Prone pressure	300	71-528	43	3,600

* The hip lift-prone pressure method is equated as 100 per cent.
† Hips elevated 3 to 4 inches, 12 times per minute.

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19. Cowan, S. L.: Artificial Respiration with Special Reference to the Rocking Stretcher Method, and Trials with a "Riley Rocking Stretcher," Medical Research Council, Royal Naval Personnel Research Committee, London, His Majesty's Stationery Office, 1949.

In studying the Eve method with respect to the rate of rocking on the volume of each cycle and on the minute volume of air exchange, we found that rocking at a rate of eight times per minute increased the volume of each cycle but not the minute volume as compared with 12 times per minute. When the rate was increased to 18 times per minute, the volume of each cycle was decreased so that the minute volume remained the same or was only slightly increased. At 30 times per minute the volume of each cycle was decidedly reduced and the diaphragm tended to remain in a state of sustained inspiration. However, to graph or mathematically express the relation between the rate of rocking plus the size of the arc on the volume of air exchange per cycle and per minute would require more study than we thought the problem warranted. The optimum is approximately 12 to 15 per minute through an arc of 50 degrees.

The rocking method of Eve was also studied with the same warm corpse in both the prone and supine positions.[19] Nine cases were used, and the exchange in the prone averaged 225 cc. and in the supine 200 cc. This was done, of course, with the endotracheal airway and would not hold for the supine position if another airway were used, because of occlusion with the tongue or secretions.

TABLE 3.—*Results with Various Manual Methods and the Rocking Method in Eight Warm Human Corpses (Full Face Mask, Mandible Fixed)*

Procedure	Single Respiratory Cycle: Average, Cc.	Range, Cc.	Methods Compared, % *	Minute Volume, Cc., Rate 12/Min.
Prone rocking †	216	76-352	41	2,592
Hip lift ‡	265	128-500	51	3,180
Prone pressure	164	28-557	31	1,968
Hip lift-prone pressure	520	205-1,199	100	6,240
Arm lift-prone pressure	549	228-1,000	105	6,588
Supine-arm lift-chest pressure	514	342-885	99	6,168

* The hip lift-prone pressure method is equated as 100 per cent.
† Rocked through arc of 40 degrees 12 times per minute.
‡ Hips elevated 3 to 4 inches 12 times per minute.

TABLE 4.—*Results with Various Manual Methods and the Rocking Method in Eight Warm Human Corpses (Nostrils Closed, Mouth Piece, Freely Movable Tongue and Mandible)*

Procedure	Single Respiratory Cycle: Average, Cc.*	Range, Cc.*	Methods Compared, % †	Minute Volume, Cc., Rate 12/Min.	Failures, %
Prone rocking ‡	183	57-261	37	2,196	0
Hip lift §	221	52-385	44*	2,652	25
Prone pressure	247	157-414	50*	2,964	25
Hip lift-prone pressure	492	85-971	100	5,904	0
Arm lift-prone pressure	572	395-828	116	6,864	0
Supine-arm lift-chest pressure	498	227-550	101*	5,976	50

* Average and range do not include the failures to obtain air exchange.
† Hip lift-prone pressure method equated as 100 per cent.
‡ Rocked through an arc of 40 degrees 12 times per minute.
§ Hips elevated 3 to 4 inches 12 times per minute.

With the Emerson method, the effect of raising the hips to varying degrees was studied. It was thought that a small elevation might cause only a negligible inspiration, whereas excessive elevation, aside from being exhausting, might cause the abdominal viscera to slide cephalad and cause active expiration by pressure on the diaphragm as in the rocking method. Neither of these suppositions was verified by the results.

In eight corpses it was found that elevation of the hips of 2 inches (5 cm.) yielded an average inspiration of 217 cc., and of 6 inches (15 cm.), 320 cc.; when the hips were raised to make a 45 degree angle between the body and the horizontal, the inspiration amounted to 400 cc.; at 80 degrees the figure was 470 cc.

In a subsequent series on eight warm corpses in which the Emerson hip lift was compared with the hip roll method, the former produced twice as great a tidal volume as the latter (table 2). However, combination of the roll with the Schafer prone pressure method yielded 76 per cent of the ventilation accomplished by the hip lift combined with the Schafer and almost twice as much as the Schafer method alone.

Natural Airway with Full Face Mask: The full face mask was used on eight corpses, with results shown in table 3. The results closely conform to those obtained with an endotracheal airway (see table 1). In one of the eight corpses, only three of the six methods tried produced any air exchange, namely, the hip lift, the hip lift-prone pressure and the rocking methods.

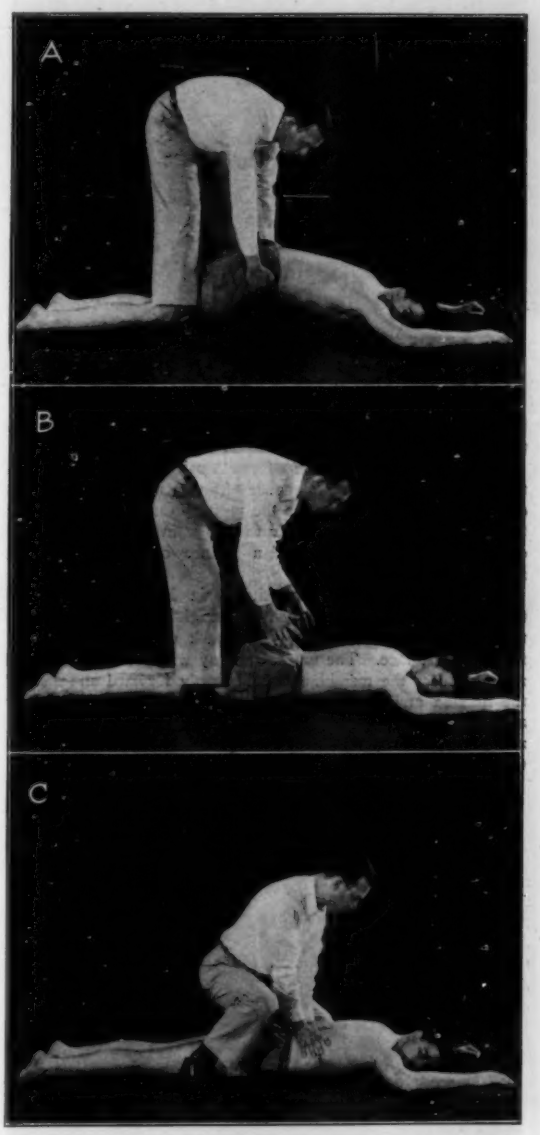

Fig. 3.—The Schafer-Emerson-Ivy method, "push and pull," from the standing position. *A*, elevation of hips to cause active inspiration. *B*, replacing hips and preparing to execute prone pressure. *C*, pressure on floating ribs to cause active expiration.

No explanation could be found for the failure of the other methods in this case.

Airway Made with a Mouth Piece: The mouth piece was used with the nostrils closed by a clip to provide an air-tight airway and at the same time to permit the tongue and mandible to remain free, in order that we might obtain some information regarding how frequently they would interfere with air exchange.

This was studied in eight corpses. Air exchange was obtained in only half the cases with the Silvester (supine) method but in three fourths of the cases with the hip lift and prone pressure methods. The hip lift-prone pressure method and the arm lift-prone pressure method obtained air exchange in every case. The data on the air exchange in those cases in which

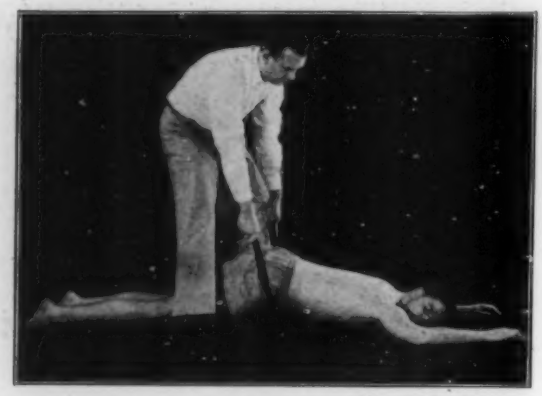

Fig. 4.—Use of a belt to assist in the hip-lifting technic of Emerson.

it was obtained are shown in table 4. The superiority of the two prone "push and pull" methods is evident.

The results of this phase of our work certainly emphasize the importance of the maintenance of an open airway. Even in our presumably skilled hands the prone pressure method failed to produce any measurable air exchange in one fourth of the cases, apparently because of a failure of adequate elastic recoil of the chest.

Natural Airway with an Anesthesia Mask: This is the type of mask that is generally used for giving artificial respiration by mechanical methods. The mask will leak unless held firmly on the face. The natural airway will become obstructed readily unless the mandible is held firmly forward and against the maxilla and the face to one side. Although it gives less accurate results, because of possible leakage of air, this method also proves the superiority of the hip lift-prone pressure method (table 5).

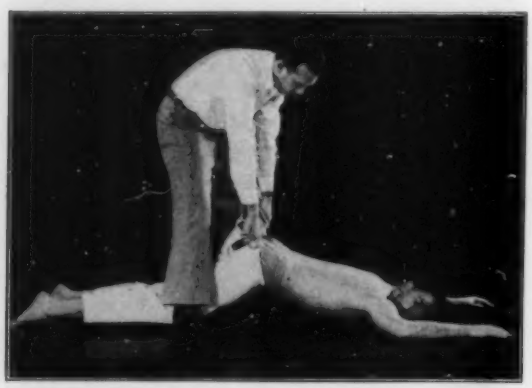

Fig. 5.—Use of victim's trousers to elevate hips as part of the Schafer-Emerson-Ivy method of artificial respiration.

MECHANICAL METHODS

The use of the alternating negative and positive pressure ("suck and blow") and the automatic intermittent positive pressure resuscitators was rather simple. The mask was placed on the face with the mandible and face held in the appropriate position, and then the flows were recorded under various pressures (fig. 7).

The automatic intermittent positive pressure device (Burns' valve) was used on eight warm human corpses with the following averaged results: At pressures of 6, 9 and 12 mm. of mercury rates of 59, 37 and 30 cycles per minute, respectively, were obtained with an air exchange of 16, 51 and 107 cc., respectively, per cycle. When the Burns valve was operated at a pressure of 14.7 mm. of mercury, it performed at an average of 25 cycles per minute with an average air exchange of 185 cc. per cycle, the minute volume of ventilation being 4,625 cc.

Use of the alternating positive (+14 mm. of mercury) and negative (—9 mm. of mercury) pressure resuscitator on these eight corpses resulted in an average rate of 21 cycles per minute with an average air exchange of 216 cc. per cycle, the minute volume of ventilation being 4,536 cc. Thus, operating at the same pressures, the two devices yielded approximately the same results.

TABLE 5.—*Results with Various Manual Methods and the Rocking Method in Thirteen Warm Corpses (Ordinary Anesthesia Face Mask)*

	Single Respiratory Cycle			
Procedure	Average, Cc.	Range, Cc.	Methods Compared, % *	Minute Volume, Cc., Rate 12/Min.
Prone rocking †	82	50-160	32	984
Hip lift ‡	91	15-147	35	1,092
Prone pressure	156	10-373	60	1,872
Hip lift-prone pressure	258	15-627	100	3,096
Arm lift-prone pressure	98	10-233	38	1,176
Supine-arm lift-chest pressure	213	0-724	82	2,556

* The hip lift-prone pressure method is equated as 100 per cent.
† Rocked through arc of 40 degrees 12 times per minute.
‡ Hips elevated 3 to 4 inches 12 times per minute.

TABLE 6.—*Results with "Suck and Blow" Resuscitator and Burns' Valve in Eight Warm Corpses*

	Single Respiratory Cycle				Minute Volume		
Pressures*	Average, Cc.	Range, Cc.	Methods Compared, % †	Cycles per Minute	Average, Cc.	Range, Cc.	Methods Compared, % †
Burns' Valve							
6	16	8.5-28	3	59	944	578-1,779	16
9	51	32-86	10	37	1,887	786-2,983	31
12	107	56-156	21	30	3,310	1,779-4,998	54
14.7	185	139-250	37	25	4,625	3,722-6,640	77
Resuscitator							
+14 —9	216	113-297	43	21	4,536	2,721-7,137	76

* Millimeters of mercury measured at the apparatus.
† Normal average values equated at 100 per cent: tidal air = 500 cc.; minute volume = 6,000 cc.

Table 6 shows the average and ranges of the results. An inadequate ventilation or obstructed airway was not observed with mechanical respiration in eight cases in this work or in 16 other cases studied several years ago by Schwerma and Ivy.[20]

Results on Subjects with Voluntary Suspended Respiration.—This method was employed because so many investigators have used it and we desired to compare the results we obtained in corpses with those we might obtain by this method. The nine volunteers for this phase of our study were medical or graduate students. They were given instruction in the performance of the various manual methods of artificial respiration and in suspending respiration after a short period of hyperventilation. Training is required to "learn not to breathe."[18] Each method was then performed on the volunteer until he showed a regular pattern in the pneumogram from the spirometer, a basal metabolism test mouth piece and nasal clip being used. The volunteers had no knowledge of the results we had obtained on corpses by the various methods. In fact, we ourselves had not summarized our results when the volunters were studied.

The results are shown in table 7. Comparison of results shows that they are essentially in agreement, except that the volume

20. Unpublished data.

of air exchange is four times greater in the volunteers than in warm corpses (table 1). The "push and pull" methods in these volunteers yielded about twice as much air exchange as either a "push" or "pull' method alone. In a similar survey on passive volunteers Thompson [14] obtained two to three times as much ventilation with the hip lift-prone pressure method as with the Schafer method.

Either the volunteers unconsciously aided the artificial maneuvers or there is less resistance in the conscious person to respiratory exchange. Numerous invalidating criticisms may be raised against this sort of experiment. Even though the results agree in general with those on the warm corpses, we are inclined to place much more weight on the results from the corpses and to consider them applicable in resuscitation of near-dead asphytic subjects.

Silvester [5] and Bruns [18] successfully used warm corpses before the onset of rigor mortis, within two hours after death, but Schafer,[6] Bolton [21] and Drinker [22] were unsuccessful in their attempts. The lack of success is easily understood by us and will be experienced by others unless they have their apparatus set up in the hospital and stand by day and night for a call from the attending nurses.

TABLE 7.—*Results on Nine Normal Subjects with Suspended Respiration After Hyperventilation by Various Manual Methods and the Rocking Method*

Procedure	Single Respiratory Cycle: Average, Cc.	Single Respiratory Cycle: Range, Cc.	Methods Compared, %*	Minute Volume, Cc., Rate 12/Min.
Tidal air	700	428-1,100	..	8,400
Supplemental	900	499-1,314	..	.....
Complemental	2,700	2,142-3,885	..	.....
Vital capacity	3,600	2,756-4,485	..	.....
Prone rocking †	950	314-1,428	45	11,400
Hip lift ‡	1,220	685-1,885	60	14,760
Prone pressure	1,000	485-1,652	48	12,000
Hip lift-prone pressure	2,070	1,414-2,671	100	24,840
Arm lift-scapular pressure	1,900	1,214-2,861	96	23,880
Arm lift-prone pressure	1,995	1,085-2,866	96	23,940
Supine-arm lift-chest pressure	1,800	1,071-2,799	87	22,600

* The hip lift-prone pressure method is equated as 100 per cent.
† Rocked through an arc of 40 degrees 12 times per minute.
‡ Hips elevated 3 to 4 inches 12 times per minute.

Pask [2b] reports a single case in which the intubated subject was anesthetized with thiopental sodium and ether and rendered apneic by forced ether inhalation. He found similar values for pulmonary ventilation (range 331 to 394 cc.) with the Schafer, Silvester and Eve methods when the subjects were rocked 30 degrees in each direction in the prone position or 45 degrees in the supine. When they were rocked 45 degrees in each direction in the prone position the values were higher (559 to 580 cc.). On a single anesthetized and curarized subject, Pask again found the Eve method superior and suggested that the rocking method may assist blood circulation (as inferred from oxygen consumption).

EASE OF PERFORMANCE OF MANUAL METHODS

The nine volunteers were asked, after they had received considerable instruction on the performance of the various methods, to assess the relative ease of performing them for a period of time that might be required in resuscitation. According to their assessment the methods fell into three groups.

Group 1 included those methods requiring little effort. The Schafer and Eve methods are in this group. Group 2 included the methods which are moderately exhausting but could be continued for a physiologically reasonable period by almost every operator under emergency conditions. The Silvester, the Schafer-Nielsen-Drinker and the Nielsen methods are in this group. Group 3 included the methods which are exhausting and could not be performed over a prolonged period, but could be prolonged over a physiologically reasonable period by almost every operator under emergency conditions. The Emerson and the Schafer-Emerson-Ivy methods belong here because the operator must lift the body at the hips. After indoctrination in performing the hip lift-prone pressure method from a kneeling position, the majority preferred this to the sole maneuver of lifting the hips. However, in the subsequent series, in which the

Fig. 6.—The hip roll modification of the hip lift method.

hip roll-prone pressure method (fig. 6) was evaluated for efficacy of ventilation and ease of performance, it provided three-quarters the air exchange of the hip lift-prone pressure method and was notably easier of performance. It would readily be classified in upper group 2—almost in group 1.

COMMENT

Our results reaffirm the fact that no one method of artificial respiration can be offered as completely satisfactory. We have therefore listed in table 8 the advantages and disadvantages of the rocking method of Eve and each of the manual methods included in our study. However, there can be no doubt regarding the observation that those manual methods which utilize

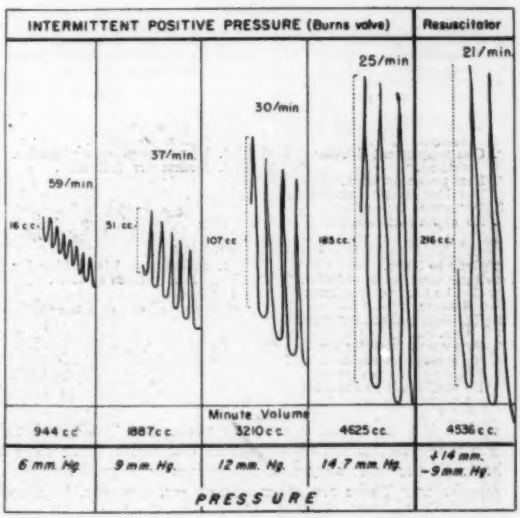

Fig. 7.—Graphic representation of respiratory patterns obtained with various settings of intermittent positive pressure (Burns' valve) and "suck and blow" resuscitator devices.

both a "push and pull" maneuver are superior. As regards the amount of the air exchange obtained, there is not enough evidence available in our work or in the literature to warrant a conclusion that any one of the "push and pull" methods is superior to the other. It is noteworthy that each of the "push and pull" manual methods, as well as both mechanical methods used, produced a minute volume of 5,000 to 6,000 cc. This is

21. Bolton in Schafer.[6]
22. Drinker, C. K.: Personal Communication to the authors.

an optimum amount; more would result in the disadvantages of hyperventilation.

Except for the armamentarium of the anesthetist and of the fire or police emergency crew, all mechanical devices must always be considered as adjuncts to and not substitutes for manual methods. This is especially true in view of the effectiveness of the "push and pull" manual methods; in other words, the mechanical resuscitators employed in this study (when operated at mask pressures of + 14 mm. of mercury positive pressure and — 9 mm. of mercury negative pressure or at an intermittent positive pressure of + 14 mm. of mercury) are not more effective than a properly performed "push and pull" manual method. The properly employed mechanical resuscitator requires less skill than a properly performed "push and pull" manual method, is not fatiguing and can deliver pure oxygen; herein lie the most important advantages of a good mechanical resuscitator. There are other advantages, however.[23] Since a resuscitator need be applied only to a patient's face, it can be employed where physical manipulation of the body is impossible or would be harmful, as during major surgical procedures, in accident cases with extensive burns, broken vertebrae, ribs and arms, for victims trapped under debris of excavations or overturned vehicles and during transportation to a hospital. The resuscitator further signals when the airway is obstructed and provides an aspirator.

TABLE 8.—*Advantages and Disadvantages of Manual Methods and Eve (Rocking) Method*

Advantages	Disadvantages
SILVESTER	
1. Started immediately. 2. Requires only one rescuer. 3. Requires no apparatus. 4. Provides good pulmonary exchange.	1. Patient supine; airway can become obstructed. 2. Fracture of ribs and rupture of the liver reported. 3. Moderately exhausting. 4. Probably requires specially trained personnel.
SCHAFER	
1. Almost universally known and taught. 2. Simple to learn. 3. Performed by anyone (including women and children). 4. Performed for indefinite periods of time. 5. Excellent results reported. 6. Requires no equipment. 7. Instituted immediately. 8. Uses prone position. 9. Requires but one rescuer.	1. Tidal volume not large. 2. Fractures of ribs reported. 3. Active expiration with only passive inspiration.
EVE	
1. Simple to learn. 2. Performed by anyone. 3. Performed for indefinite time. 4. Accessory treatment can be carried on simultaneously. 5. No fractures of bones, or ribs. 6. Uses prone position. 7. Requires one rescuer to rock (but at least two to three to set up without neglecting patient.)	1. Requires proper apparatus. 2. Time lost setting up apparatus if alone. 3. Tidal volume not large. 4. Stomach contents may be poured up into pharynx and subsequently aspirated.
NIELSEN	
1. Requires one rescuer only. 2. Started immediately. 3. No appliances required. 4. Prone position used. 5. Provides excellent exchange.	1. Not well known. 2. Moderately fatiguing. 3. May cause shoulder injuries or fracture of ribs.
SCHAFER-NIELSEN-DRINKER	
1. Similar to established Schafer method. 2. Can supplement Schafer method. 3. Uses prone position. 4. Provides excellent exchange. 5. Performed immediately. 6. No apparatus required.	1. Requires two operators to complete operation. 2. May cause shoulder injuries. 3. Moderately fatiguing.
SCHAFER-EMERSON-IVY	
1. Easy to learn. 2. Same position as Schafer. 3. Can be used to supplement Schafer. 4. Excellent pulmonary ventilation. 5. Performed immediately. 6. No apparatus required. 7. Requires only one rescuer. 8. No additional possibilities of trauma.	1. Difficulty in lifting hips for long periods of time.

A number of articles have been published in recent years on the significance of maintaining and promoting the circulation during the administration of artificial respiration.[24] It is certainly true that the maintenance of a continuous positive pressure in the lungs above 14 mm. of mercury (8 inches [20 cm.] of water) interferes with venous return in a normal person, and it would be deleterious to maintain any appreciable continuous positive pressure in a person requiring resuscitation. However, it does not follow that intermittent positive pressure is deletrious to blood flow through the lungs; if this were the case the Drinker respirator would be deleterious, since it is, in effect, an intermittent positive pressure device. Whittenberger and Maloney[25] recommend the use of mild positive pressure in a Drinker respirator, alternating with the usual negative as an aid in cases of depressed circulation, although this may not be necessary in the average, young, robust patient with poliomyelitis. It is worth noting, however, that Drinker respirators, even when set for "no positive" (corresponding to negative in a resuscitator) always have a slight positive phase, at least 1 or 2 cm. of water; there is evidence that this is of value, at least to some patients. Further, Motley[26] has demonstrated that any decrease in cardiac output incident to the use of positive pressure is dependent on the type of curve produced and the resulting mean mask pressure. The most physiologic curve is one with a gradual inspiratory rise and a rapid expiratory fall to near atmospheric level, with the expiratory phase exceeding the inspiratory.

Under normal conditions it is known that inspiration produces a slight negative pressure in the large veins of the thorax and that expiration tends to retard the flow.[27] Furthermore, it has been found by radioactive tracer technic in heparinized, recently deceased dogs that the alternate mechanical inflation and deflation of the lungs may cause sufficient movement of blood to spread the radioactive substance throughout the blood vessels [24d] and that ventilation provided by mechanical means is more effective than that provided by manual means.[28] There can be no doubt regarding the fact that inflation and deflation of the lungs, particularly when some tendency toward negative or inspiratory pressure is produced in the thorax, will promote a certain amount of blood flow. The amount, however, is not easily measured.[24e] This is interesting from a mechanical viewpoint, but is probably of no physiological significance in resuscitation; Ivy and Schwerma[29] clearly demonstrated that there was no statistically significant difference in the effective-

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24. (*a*) Thompson, S. A., and Rocky, E. E.: The Effect of Mechanical Artificial Respiration upon Maintenance of the Circulation, Surg., Gynec. & Obst. **84:** 1059 (June) 1947. (*b*) Kerven, A. M., and Liard, J.: Contribution à l'Étude de la ranimation dans les états de mort apparente. J. de physiol. et de path. gén. **37:** 129 (March) 1939. (*c*) Johnson, J., and Kirby, C. K.: An Experimental Study of Cardiac Massage, Surgery **26:** 472 (Sept.) 1949; Cardiac Resuscitation, in Symposium on Recent Advances in Surgical Physiology, S. Clin. North America **29:** 1745 (Dec.) 1949. (*d*) Thompson, S. A.; Quimby, E. A., and Smith, B. C.: The Effect of Pulmonary Resuscitation Procedures upon the Circulation as Demonstrated by Use of Radioactive Sodium, Surg., Gynec. & Obst. **83:** 387 (Sept.) 1946; The Effect of Pulmonary Inflation and Deflation upon the Circulation, J. Thoracic Surg. **17:** 323 (June) 1948.

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26. Motley, H. L.; Cournand, A.; Eckman, M., and Richards, D. W., Jr.: Physiological Studies on Man with Pneumatic Balance Respirator, "Burns Model," J. Aviation Med. **17:** 431 (Oct.) 1946. Motley, H. L., and others: Intermittent Positive Pressure Breathing: Means of Administering Artificial Respiration in Man, J. A. M. A. **137:** 370 (May 22) 1948.

27. Fremont-Smith, F.: The Role of Elongation and Contraction of the Inferior Vena Cava, Coincident with Respiration in the Return of Blood to the Heart: Report of an Observation on Man, J. Mt. Sinai Hosp. **9:** 432 (Nov.-Dec.) 1942. Reid, W. D.: Respiration as a Factor in the Circulation of the Blood, Ann. Int. Med. **17:** 206 (Aug.) 1942.

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29. Schwerma, H.; Ivy, A. C.; Friedman, H., and La Brosse, E.: A Study of Resuscitation from the Nearly Fatal Effects of Exposure to Carbon Monoxide, Occup. Med. **5:** 24 (Jan.) 1948.

ness of intermittent positive pressure and alternating positive and negative pressure in the actual resuscitation of dogs from carbon monoxide asphyxia. It may, of course, provide just enough extra circulation of blood in the first few crucial seconds or minutes of resuscitation to make a difference between survival and death. But this means only that the manual method which yields the greatest respiratory excursion, namely, one of the "push and pull" methods which creates positive and negative intrathoracic pressure, would be the method of choice, since a mechanical device is not present during these first few critical minutes. Regarding the choice of a mechanical method for prolonged artificial respiration, a significant difference was not found in the rate of return to normal of the blood pressure reduced to a low level by curare in the experiments of Ivy and Schwerma.[30] Therefore, as long as the method of obtaining pulmonary ventilation is optimally effective and does not lead to the formation of a continuous intrapulmonary positive pressure, the maximum effect possible on the blood flow or circulation is probably being accomplished. It is argued, further, that the Eve method promotes the circulation of blood because of the to and fro movements of the body and the effect of gravity during the rocking,[31] but this has yet to be shown.[19]

In the case of drowning, it has been proposed that first lowering the head to help drain the lungs is indicated. This idea is retained by some despite the generally accepted concept that active artificial respiration should be started immediately and despite Schafer's [6] observation in 1908 that little or no water was found in the lungs after fresh water drowning. The Gettler test,[32] published in 1921, is based on the fact that in postmortem submersion the chloride content of the blood is equal in the right and left sides of the heart whereas it is higher in the right side in fresh water drowning and higher in the left side in salt water drowning, showing that water and electrolytes move violently in a drowning person or animal.[33] In fresh water, the water is rapidly absorbed into the blood. In sea water, water and protein are drawn from the blood into the alveoli and bronchi as in pulmonary edema. This, of course, conforms with the well documented observation that only small quantities of fluid drain from the lungs during inversion after drowning.[34] Maintaining the body in a slightly inclined head-down position during artificial respiration is probably advisable to allow drainage of any fluids that do collect and to combat shock.

Swann,[33c] because he believes that "small amounts" of water may block the airways, has suggested an attempt at drainage before resuscitation. This suggestion is contrary to the accepted dictum that artificial respiration should be given immediately, and it does not conform to our realistic experience. In the presence of massive pulmonary edema in corpses, air exchange by any method is inadequate, and as found in studies by Freeman and Ivy [35] on phosgene poisoning no method of artificial respiration will save life. But, in the presence of moderate pulmonary edema, artificial respiration, though air exchange is reduced, will provide ventilation immediately and during the stage that is crucial for the resuscitation of the heart. Furthermore, our data show that in such cases one of the "push and pull" methods of manual artificial respiration is just as effective in accomplishing pulmonary ventilation as the mechanical resuscitators operating at a maximum mask pressure of 14 mm. of mercury. Operation at a higher pressure is not indicated for routine use or by other than medical personnel, because of the possible danger of interstitial pulmonary emphysema.

Differences of opinion regarding a question that may affect survival can be dealt with only by survival experiments in which a sufficient number of cases are used to give significance to any difference found. Unfortunately this question cannot be determined on the dog drowned to an arbitrary end point in fresh water, because in the dog that absorbs a lethal amount of water into the pulmonary blood acute ventricular fibrillation [36] develops and the dog dies regardless of any resuscitation procedure. Regardless of the end point at which resuscitation is started, all resuscitation procedures save the same number of dogs.[37] Whether this holds for man is not known. It does not hold for fresh water drowning of cats, rabbits or monkeys, in some of which there may develop ventricular fibrillation.[36e]

Cot [38] reports that 10 to 15 per cent of deaths from drowning are due to what he calls "white" asphyxia; the remainder are what he calls "blue" asphyxia and are due to obstruction with water and mucus. The former deaths, he explains, are due to syncope with little or no water in the lungs, and Banting [36c] thought that some deaths were due to spasm of the glottis. In fresh water drowning there need be no equivocation as to whether spasm of the glottis occurred early and caused death, because an examination of the blood for hemolysis and chloride would settle the point.

It would be important to settle the question of whether spasm of the glottis does occur in drowning in man and persists under deep asphyxiation. We know that an asphyxial death may be produced reflexly in certain aquatic animals by submerging of the nostrils. However, reflexly induced spasm of striated muscle does not persist in deep anesthesia or asphyxia or to the point of death.

SUMMARY AND CONCLUSIONS

1. The relative efficiency, as regards the minute volume of pulmonary ventilation, of the manual and mechanical methods for administering artificial respiration for resuscitation was determined on 109 warm corpses within one hour after death and before the onset of rigor mortis and on nine normal subjects with voluntarily suspended respiration after hyperventilation.

2. The manual methods in which the subject lies prone or supine and which utilize both a "push and pull" principle provide approximately twice the minute volume of ventilation obtained with those which utilize only a "push" or a "pull" principle. However, the supine position was found to result in respiratory obstruction in one-half the cases. The "push" or "pull" methods alone did not ventilate in one fourth of the warm corpses.

3. The Nielsen method used in the Scandinavian countries is more effective than the Schafer method. The former is a "push and pull" method and the latter a "push" method.

4. Lifting the hips (Emerson) 4 inches (10 cm.) with the subject prone, a "pull" method, has been found by us to be even more effective than the Schafer method.

5. When the hip-lifting maneuver (Emerson method) is added to the lower chest pressure maneuver (Schafer method) to yield a "push and pull" method (Schafer-Emerson-Ivy method), we find that it is as effective as the Nielsen method or the Schafer-Nielsen-Drinker method.

6. Thus, those who now are indoctrinated with the Schafer prone presssure method can double the ventilating efficiency of the method by lifting the hips 4 inches 12 times each minute, alternating with the push on the lower part of the chest. Lifting the hips is fatiguing and, after the crucial first several minutes, may be employed after every second or third "push" on the lower part of the chest. The newer hip roll-prone pressure method is much easier to perform than the hip lift-prone pressure method and can be executed for long periods of time. The Nielsen method is less fatiguing to perform than the Schafer-Emerson-Ivy method.

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34. Karpovich, P. J.: Water in the Lungs of Drowned Animals, Arch. Path. **15**: 828 (June) 1933.

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36. (*a*) Swann.[33] (*b*) Footnote 28. (*c*) Banting, F. G.; Hall, G. E.; Janes, J. M.; Leibel, B., and Lougheed, D. W.: Physiological Studies in Experimental Drowning: Preliminary Report, Canad. M. A. J. **39**: 226 (Sept.) 1938. (*d*) Lougheed, D. W.; Janes, J. M., and Hall, G. E.: Physiological Studies in Experimental Asphyxia and Drowning, Canad. M. A. J. **40**: 423 (May) 1939. (*e*) Gordon, A. S.; Raymon, F.; Fainer, D. C., and Ivy, A. C.: Drowning Phenomena in Various Species, to be published.

37. Fainer, D. C.; Martin, C. G.; Schwerma, H., and Ivy, A. C.: Resuscitation from Fresh Water Drowning, abstracted, Federation Proc. **8** (pt. 1): 43 (March) 1949.

38. Cot, C.: Les asphyxies du temps de paix: Submersion, électrocution, intoxication oxycarbonique, et du temps de guerre; gaz de combat, guide du sauveteur spécialisé, Paris, 1932.

7. Intermittent positive (+14.7 mm. of mercury) pressure devices and alternating positive (+14 mm. of mercury) and negative (—9 mm. of mercury) pressure resuscitators provide safe, adequate exchange. These machines will signal when obstruction occurs, although inadequate ventilation or obstruction of the airway has not been observed with mechanical respiration.

8. Except for the armamentarium of the anesthetist and the fire, police and rescue emergency crew, all mechanical devices must always be considered as adjuncts and not substitutes for manual method, preferably of the "push and pull" type. The mechanical resuscitator operating at a maximal mask pressure of +14 mm. of mercury is no more effective than a properly performed "push and pull" manual method. The properly employed mechanical resuscitator requires less skill than a properly executed "push and pull" manual method, is not fatiguing and can furnish 100 per cent oxygen; herein lie the most important advantages of a good mechanical resuscitator. There are other advantages, however. Since a resuscitator need be applied only once to a patient's face, it can be employed where physical manipulation of the body is impossible or would be harmful, as during major surgical procedures, in accident cases with extensive burns, broken vertebrae, ribs or arms, for victims trapped under debris of excavations or overturned vehicles and during transportation to a hospital. Some resuscitators signal when the airway is obstructed and provide an aspirator.

9. If a method of resuscitation provides optimal pulmonary ventilation without producing a continuous intrapulmonary positive pressure, the concern regarding the relation of the method to the promotion or maintenance of the circulation should be secondary. Any effective movement of blood produced will probably be proportional to the effective manual or mechanical intrapulmonary pressure alteration produced.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.

R. T. STORMONT, M.D., *Secretary.*

POTENCY OF HEPARIN SODIUM

Heparin sodium, widely employed as a potent anticoagulant for the treatment of intravascular clotting, received official status in the U. S. Pharmacopeia XIV, Nov. 1, 1950. Because the drug is not a pure homogeneous substance and must be assayed by biologic methods, the Pharmacopeia has adopted a standard of potency which it requires to be expressed in terms of a heparin unit rather than in terms of weight as currently appears in the labeling for commercially available products. One U.S.P. heparin unit is approximately the quantity of heparin sodium required to maintain fluidity in 1 cc. of plasma prepared according to the directions of the U.S.P. assay, for heparin sodium.

The U.S.P. standard provides for a minimum potency of 100 U.S.P. heparin units per milligram but does not limit potency above this equivalent, provided such highly purified products are labeled in terms of units. Therefore, products with greater potency than the minimum retain U.S.P. status and are not construed to be superior to preparations having the official minimum potency.

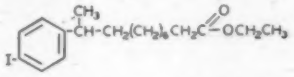
The Council will henceforth require manufacturers of accepted products to indicate potency in terms of U.S.P. units, until such time as a sufficient degree of purification has been achieved to permit assay by chemical methods. Because dosage is still subject to control by clinical tests of the clotting or coagulation time, little difficulty should be experienced in the use of more potent (purified) preparations, as long as the heparin unit rather than weight is used as a basis for determination of the initial and subsequent dosage of the drug. It is hoped that eventually heparin may be sufficiently purified to permit declaration of potency in terms of weight rather than units, in accordance with the current practice for all drugs which can be accurately assayed by chemical methods.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

ETHYL IODOPHENYLUNDECYLATE.—Pantopaque (Lafayette Pharmacal Inc.)—$C_{19}H_{39}IO_2$—M.W. 416.34.—A mixture of the κ and ω isomers of ethyl iodophenylundecylate, which is of quite uniform, but unknown, proportions. The principal isomer is thought to be the κ, whose structural formula may be represented as follows:



Actions and Uses.—Ethyl iodophenylundecylate is an absorbable iodized fatty acid compound of low viscosity designed especially for myelography. It is particularly useful for study of the lumbar region. Intraperitoneal or oral administration in lower animals is moderately toxic, but no toxic phenomena have been observed with massive doses injected intrathecally in higher animals. It is absorbed from the peritoneal cavity of experimental animals in about six weeks and from the subarachnoid space of dogs in about 15 months. In humans, intrathecal injection of 2 to 5 cc. is well tolerated even when the agent is left in the spinal canal. When the bulk of the injected material is removed, the remainder is usually absorbed within two months. When none is removed, absorption proceeds at a variable rate depending on conditions within the spinal canal, sometimes requiring several years.

The incidence and severity of side effects following myelography with aspiration of ethyl iodophenylundecylate is only slightly greater than with ordinary lumbar puncture. In 10 to 30 per cent of patients there may be transient elevation in temperature and increase of symptoms referable to a back condition. The agent should not be employed when lumbar puncture is contraindicated, and to avoid subdural and extraarachnoid extravasation it should not be used within 10 days of a previous lumbar puncture. It should not be employed as a contrast medium for other body cavities, because the limitations and contraindications for such use are not known.

Dosage.—Ethyl iodophenylundecylate is injected intrathecally by lumbar puncture technic; the 2 to 5 cc. dose is usually injected between the third and fourth lumbar segments. Care should be exercised to ascertain that the needle point is in the subarachnoid space. The injection should be made slowly to detect unusual resistance from obstruction. The needle with adapter is left in place during myelography to implement removal of the agent when the examination is completed. The agent is removed by aspiration in conjunction with fluoroscopic visualization.

Tests and Standards.—

Physical Properties: Ethyl iodophenylundecylate is a colorless to pale yellow, odorless, viscous liquid. The color darkens on long exposure to air. The specific gravity (20/20) is between 1.240 and 1.263. The refractive index is between 1.5230 and 1.5280. It is freely soluble in alcohol, benzene, chloroform and ether and very slightly soluble in water.

Identity Tests: Place about 1 ml. of ethyl iodophenylundecylate, 15 ml. of water and 7 Gm. of sodium dichromate in a 50 ml. round-bottom flask. Carefully add 10 ml. of sulfuric acid. Moderate the vigorous reaction which ensues by cooling the flask with tap water. After the reaction has stopped, reflux the mixture for 2 hours. Cool the contents of the flask and pour it into 25 ml. of water. Filter the mixture with suction, wash the precipitate with a little cold water and recrystallize it from 10 ml. of diluted alcohol. The glistening leaflets of *p*-iodobenzoic acid formed melt between 263 and 265 C.

(Saponification Equivalent) Place about 1 Gm. of ethyl iodophenylundecylate, accurately weighed, in a 250 ml. flask. Add exactly 25 ml. of 0.5 *N* alcoholic potassium hydroxide. Reflux the mixture on a steam bath for 1 hour. Cool the mixture, add 25 ml. of water and 15 drops of phenolphthalein T.S., and titrate with 0.5 *N* hydrochloric acid. Calculate the saponification equivalent (S) from the equation:

$$S = \text{mg. of sample} \div [(\text{ml. KOH} \times N) - (\text{ml. HCl} \times N)].$$

The saponification equivalent is not less than 395 nor more than 420.

Purity Tests: Dissolve 1 ml. of ethyl iodophenylundecylate in 10 ml. of chloroform in a glass-stoppered cylinder, add 3 drops of phenolphthalein T.S. and 0.3 ml. of 0.1 *N* sodium hydroxide, stopper, and shake the mixture vigorously: the mixture becomes red *(absence of free acids).*

Place 3 ml. of ethyl iodophenylundecylate and 10 ml. of freshly prepared 0.5 *N* potassium iodide in a 25 ml. glass-stoppered cylinder. Add 5 drops of freshly prepared starch T.S., stopper, shake the mixture vigorously for 15 seconds and allow the cylinder to stand: the aqueous layer shows no blue color *(absence of free iodine).*

Ash about 1 Gm. of ethyl iodophenylundecylate, accurately weighed: the amount of residue is not more than 0.1 per cent.

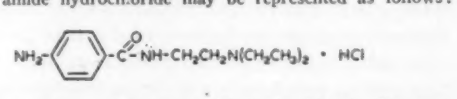
Assay: (Iodine) Place about 0.5 Gm. of ethyl iodophenylundecylate, accurately weighed, 12 Gm. of halogen-free sodium peroxide and 0.2 Gm. of lactose in a Parr bomb. Tighten the cap with a wrench and shake the mixture for 45 seconds. Place the bomb in a short length of steel pipe supported vertically over a Bunsen burner. Put a few drops of water on the top of the bomb cap. Light the burner and place it directly under the bomb. *(Caution!* Wear goggles. View the operation by means of a slanting mirror placed at the top of the apparatus.) Heat the bomb until fusion occurs, as shown by the sudden boiling of the water on the bomb cap (about 45 seconds). Cool the bomb in air for 5 minutes, then plunge it into cold water in a metal vessel. Rinse the bomb with water, remove the cap and place the bomb cup in 300 ml. of cold water *(Caution!:* keep the mouth of the cup pointed away from you). After the fusion melt is completely dissolved, remove the cup and rinse it with a little cold water. Add the rinsings to the solution. Cool the solution to 10 C. and carefully acidify it to congo red paper with 50 ml. of 1:1 nitric acid. Finally add about 0.5 Gm. of sodium bisulfite dissolved in 10 ml. of water. Heat the solution to boiling, filter it through a tight filter paper, wash the paper thoroughly and add the washings to the solution. Very slowly and with stirring add an excess of 0.1 *N* silver nitrate. Stir to coagulate the precipitate and filter the mixture through a tared Gooch crucible. Wash the precipitate with 300 ml. of water, dry at 105 C. for one hour, cool and weigh. Each Gm. of silver iodide formed is equivalent to 0.5405 Gm. of iodine. The amount of iodine present is not less than 29.0 nor more than 30.5 per cent, equivalent to not less than 95 nor more than 100 per cent of ethyl iodophenylundecylate.

LAFAYETTE PHARMACAL INC., LAFAYETTE, IND.

Pantopaque: 3 cc. ampuls: An undiluted liquid, ethyl iodophenylundecylate, containing 30.5 per cent iodine in organic combination.

U. S. trademark 401,476. Patent 2,348,231.

PROCAINE AMIDE HYDROCHLORIDE.—Pronestyl Hydrochloride (E. R. SQUIBB AND SONS).—$C_{13}H_{21}ON_3.HCl$.—M.W. 271.79.—*p*-Amino-N-(2-diethylaminoethyl) benzamide hydrochloride.—The structural formula of procaine amide hydrochloride may be represented as follows:



Actions and Uses.—Procaine amide hydrochloride, like procaine hydrochloride, depresses the irritability of the ventricular muscle. Unlike the latter, the amide is only partially hydrolyzed by plasma esterase to *p*-aminobenzoic acid and diethylaminoethanol, so that its effect is more prolonged. Procaine amide is tolerated in larger intravenous doses than is procaine; on a weight basis, the amide is about one-half to two-thirds less toxic. It differs from procaine also in that it does not produce significant central stimulatory effects. The action occurs almost immediately after intravenous administration and the plasma level declines about 10 to 15 per cent per hour; after oral administration therapeutic levels are attained within 30 minutes to one hour. Plasma levels and urinary excretion rates following oral administration are comparable to those following intravenous injection, indicating almost complete absorption of the drug by the gastrointestinal tract. About 60 per cent is excreted unchanged; some is probably hydrolyzed as indicated above; the fate of the remainder is unknown.

Procaine amide hydrochloride is useful for the treatment of ventricular arrhythmias and extrasystoles occurring either in cardiac diseases or during general anesthesia. When administered intravenously the drug produces a hypotensive effect which is less severe than that with procaine; this effect is partially due to vasodilatation. Hypotensive reactions may be precipitous and clinical judgment is required to determine whether it is necessary to administer vasoconstrictor agents or to discontinue therapy. Epinephrine is likely to aggravate an existing arrhythmia and is therefore generally contraindicated during cyclopropane anesthesia. Until more conclusive evidence becomes available procaine amide hydrochloride is not recommended for the prevention of cardiac arrhythmias, anticipated in either conscious or unconscious subjects.

Dosage.—In conscious patients: For the treatment of ventricular tachycardia, 1 Gm. orally, followed by 0.5 to 1 Gm. every four to six hours as indicated. For the treatment of runs of ventricular extrasystoles, 0.5 Gm. orally every four to six hours as indicated. During anesthesia: 0.1 to 1.0 Gm. (1 to 10 cc. of a solution containing 100 mg. per cc.) intravenously.

Occasional transient electrocardiographic changes resembling those of quinidine intoxication have been observed with procaine amide hydrochloride and should be interpreted by a cardiologist. Intravenous injection is subject to the danger of hypotensive action; oral administration is not.

Tests and Standards.—

Physical Properties: Procaine amide hydrochloride is a white to tan, odorless, crystalline solid. It melts between 165 and 169 C. It is very soluble in water, soluble in alcohol, slightly soluble in chloroform, and very slightly soluble in benzene and ether.

Identity Tests: Dissolve about 1 Gm. of procaine amide hydrochloride in 10 ml. of water and add 10 ml. of sodium hydroxide T.S. Extract the mixture twice with 10 ml. of a 1:1 mixture of ether and benzene. Dry the combined extracts over anhydrous calcium sulfate for 30 minutes. Decant the solution into a small flask, add 5 ml. of dry pyridine and add dropwise 1 ml. of benzoyl chloride. Warm the mixture on a steam bath for 30 minutes and pour it into 100 ml. of sodium hydroxide T.S. Separate the organic layer and wash it with 20 ml. of water. Cool the solution to about 10 C., whereupon a crystalline solid separates. Filter the mixture with suction and recrystallize the solid from 20 ml. of diluted alcohol. Dry the solid at 105 C. for one hour: the procaine amide benzoate formed melts between 180 and 187 C.

Prepare a 0.0005 per cent solution of procaine amide hydrochloride and measure the optical density spectrophotometrically in the range 2,500-3,000 A. A maximum occurs at 2,780 A *(distinction from procaine hydrochloride which has a maximum at 2,880 A).*

Purity Tests: Dissolve the sulfated ash, prepared as described in the last paragraph in this section, in 23 ml. of water, add 2 ml. of diluted acetic acid and test for heavy metals by the method of *U.S.P. XIV*, page 717: the amount of heavy metals present is not more than 20 ppm.

Dry about 1 Gm. of procaine amide hydrochloride, accurately weighed, at 105 C. for four hours: the loss in weight is not more than 0.2 per cent.

Char about 1 Gm. of procaine amide hydrochloride, accurately weighed. Cool the residue, add a few drops of sulfuric acid and ignite: the amount of residue is not more than 0.1 per cent.

Assay: (Nitrogen) Accurately weigh about 1 Gm. of procaine amide hydrochloride and transfer it to a 500 ml. Kjeldahl flask. Determine the nitrogen content as directed in *U.S.P. XIV*, page 740. Each ml. of 0.5 *N* acid consumed is equivalent to 0.007004 Gm. of nitrogen. The amount of nitrogen present is not less than 15.1 nor more than 15.8 per cent, equivalent to not less than 97.5 nor more than 102.5 per cent of procaine amide hydrochloride.

Dosage Forms of Procaine Amide Hydrochloride

CAPSULES. *Identity Tests:* The contents of the capsules respond to the identity tests in the monograph for Procaine Amide Hydrochloride.

Assay: (Nitrogen) Accurately weigh an amount of powder equivalent to about 1 Gm. of procaine amide hydrochloride and determine the nitrogen as described in *U.S.P. XIV*, page 740. Each ml. of 0.5 *N* acid consumed is equivalent to 0.007004 Gm. of nitrogen. The amount of nitrogen present is not less than 14.7 nor more than 16.2 per cent, equivalent to not less than 95.0 nor more than 105.0 per cent of the labeled amount of procaine amide hydrochloride.

Solution (10 per cent Sterile). *Physical Properties:* Procaine amide hydrochloride sterile solution is a clear, water-white liquid. The *p*H is about 5.5.

Identity Tests: Procaine amide hydrochloride solution responds to the identity tests in the monograph for Procaine Amide Hydrochloride.

Assay: (Nitrogen) Accurately measure a volume of solution containing about 1 Gm. of procaine amide hydrochloride and transfer it to a 500 ml. Kjeldahl flask. Determine the nitrogen content by the method of *U.S.P. XIV*, page 740. Each ml. of 0.5 *N* acid consumed is equivalent to 0.007004 Gm. of nitrogen. The amount of nitrogen present is not less than 14.3 nor more than 16.6 per cent, equivalent to not less than 92.5 nor more than 107.5 per cent of the labeled amount of procaine amide hydrochloride.

E. R. SQUIBB AND SONS, NEW YORK

Capsules Pronestyl Hydrochloride: 0.25 Gm.

Solution Pronestyl Hydrochloride: 10 cc. vials: A solution containing 100 mg. of procaine amide hydrochloride in each cc. Preserved with 0.9 per cent benzyl alcohol and 0.09 per cent sodium bisulfite.

DIHYROSTREPTOMYCIN-U.S P. (See THE JOURNAL, July 8, 1950, page 896).

The following dosage form has been accepted:

PREMO PHARMACEUTICAL LABORATORIES, INC., SOUTH HACKENSACK, N. J.

Dihydrostreptomycin Sulfate: 50 cc. vials. Dihydrostreptomycin sulfate powder equivalent in activity to 5 Gm. of dihydrostreptomycin base.

DIA-MER-SULFONAMIDES (See New and Nonofficial Remedies 1950, page 126, Sulfadiazine-Sulfamerazine Combined).

The following dosage forms have been accepted:

CASIMIR FUNK LABORATORIES, NEW YORK

Syrup Duo-Sulfanyl with Sodium Citrate: 118.3 cc., 473 cc. and 3.78 liter bottles. A suspension containing 50 mg. each of sulfadiazine and sulfamerazine and 0.1 Gm. of sodium citrate in each cc.

E. S. MILLER LABORATORIES, INC., LOS ANGELES

Tablets Sul-Di-Mill with Sodium Bicarbonate: Each tablet contains 0.22 Gm. each of sulfadiazine and sulfamerazine and 0.3 Gm. sodium bicarbonate.

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SATURDAY, DECEMBER 23, 1950

ANTICOAGULANTS AS A CAUSE OF HEMORRHAGE

Physicians using anticoagulants must beware of the risk of hemorrhage. Major hemorrhage occurred in 1.9 per cent of 9,609 patients given dicumarol,® according to the literature. Data obtained from a questionnaire [1] answered by 136 physicians experienced in the use of dicumarol® and heparin indicate that major hemorrhage occurred in 2 per cent of about 15,500 patients treated. The chief site of major hemorrhage was the urinary tract. Gross hematuria occurred in 93 cases recorded in the questionnaire, but in no instance was it the cause of death although hematuria was associated with fatal bleeding in other sites in three cases. Hematuria was not followed by residual renal impairment. Most other instances of major bleeding were associated with pathological lesions in the gastrointestinal tract or lungs or were in postoperative sites. In the Report of the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction [2] hemorrhagic complications occurred in 54 patients, or 9 per cent of the treated group; in half the condition was mildly severe. An additional 6 per cent of the treated group had hemorrhage not due to anticoagulants, while in the "control" untreated group hemorrhage occurred in 6 per cent. Hemopericardium was found in 11 of the treated and only four of the control group.

Eighty deaths have been attributed to hemorrhage following the use of anticoagulants. Duff and Shull [3] found 21 deaths in the literature due to dicumarol® and added two others; in addition they mentioned five other deaths due to heparin or dicumarol.® Subsequent reports of four deaths have appeared.[4] Nichol [1] has added 35 previously unpublished hemorrhagic deaths due to heparin or dicumarol® brought to light by a questionnaire, showing that many such catastrophies do not find their way into print. Cohen [5] recently collected from the literature 12 deaths in patients with subacute bacterial endocarditis from cerebral hemorrhage in combined heparin-antibiotic therapy, and added two more. In the report of Duff and Shull [3] and in Nichol's article, 11 similar deaths were included, making 25 recorded deaths from cerebral hemorrhage in cases of subacute bacterial endocarditis treated with combined antibiotic and anticoagulant therapy. These deaths occurred prior to 1945; since that time it has been generally agreed that anticoagulants have no place in the treatment of this condition, although cerebral hemorrhage does occur without anticoagulant therapy in subacute bacterial endocarditis due to rupture of a mycotic aneurysm or hemorrhagic cerebral infarction. Death occurred in 55 patients who were being treated for conditions other than subacute bacterial endocarditis; 52 of these deaths occurred in the United States.

Fatal hemorrhage was generalized in 13 patients receiving dicumarol®; this was often due to complete lack of laboratory control. Nine deaths occurred in patients with carcinomatosis for whom the outlook was poor. That three patients with dissecting aortic aneurysm were treated on the assumption myocardial infarction was present points to the need to rule out this condition before anticoagulants are used. Hemopericardium was found without ventricular rupture in three other cardiac cases. Five deaths resulted primarily from the act of performing lumbar sympathetic blocks when anticoagulants were in force, although hemorrhage was found elsewhere in three cases. The use of spinal anesthesia in one patient and the performing of dorsolumbar sympathectomy in another, during the concomitant use of anticoagulants, accounted for two deaths. Fatal cerebral hemorrhage developed in 10 patients, half of whom had hypertension, but whether hypertension increases the risk of cerebral hemorrhage during anticoagulant therapy cannot be stated. Of 78 cases of long term dicumarol® therapy [6] hypertension was present in 37 per cent, yet cerebral hemorrhage developed in only one hypertensive patient.

Clinicians experienced in the use of anticoagulants agree there is less risk of hemorrhage with heparin than with dicumarol.® The Lee-White test of clotting time to control heparin therapy can be done by the average technician. Protamine sulfate, given intravenously, helps to correct the coagulation defect following heparinization. Unless the available laboratory is well versed

1. Nichol, E. S.: The Risk of Hemorrhage in Anticoagulant Therapy, Ann. West. Med. & Surg. **4**: 71 (Feb.) 1950.

2. Wright, I. S.; Marple, C. D., and Beck, D. H.: Report of the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction, Am. Heart J. **36**: 801, 1948.

3. Duff, I. F., and Shull, W. H.: Fatal Hemorrhage in Dicumarol® Poisoning, J. A. M. A. **139**: 762 (March 19) 1949.

4. Allen, A. W.: Present Day Concept of Treatment of Thrombosis and Embolism, Pennsylvania M. J. **52**: 113, 1948. Hammarsten, J. F.: Hemopericardium Without Rupture of the Heart Following Dicumarol Therapy for Myocardial Infarction, Minnesota Med. **32**: 1003 (Oct.) 1949. Powers, J. S., Jr.: Toxicity of Dicumarol; Review of the Literature and Report of Two Cases, Ann. Int. Med. **32**: 146 (Jan.) 1950. O'Connor, W. R.; Preston, F. W., and Theis, F. V.: Retroperitoneal Hemorrhage Following Lumbar Sympathetic Block During Treatment with Dicumarol, Ann. Surg. **131**: 575 (April) 1950.

5. Cohen, S. M.: Massive Cerebral Hemorrhage Following Heparin Therapy in Subacute Bacterial Endocarditis: Report of 2 Cases with a Review of the Literature, J. Mt. Sinai Hosp. **16**: 214 (Nov.-Dec.) 1949.

6. Nichol, E. S., and Borg, J. F.: Long-Term Dicumarol Therapy to Prevent Recurrent Coronary Artery Thrombosis, Circulation **1**: 1097 (May) 1950.

in the pitfalls of the prothrombin determination, dicumarol® should not be used, for lack of reliable laboratory facilities to measure prothrombin time is the most important of all contraindications to its use. The vagaries of the Quick test of prothrombin time or the Link-Shapiro modification of this test necessitate special knowledge of the technic. Bleeding induced by dicumarol® is usually controlled by adequate amounts of water-soluble vitamin K (menadione bisulfite) or K oxide. Transfusions of blood and plasma are of value after hemorrhage due to either heparin or dicumarol.®

False confidence is inspired in the clinician if the laboratory renders the prothrombin time in percentage of normal. To follow adequately the prothrombin response to dicumarol® the clinician should know the normal range of the test as done by the available laboratory, and he should adjust the dicumarol® dosage in an attempt to maintain the prothrombin time between two and two and a half times the average normal, expressed in seconds obtained by identical technic with the same thromboplastin, in which event the percentage of prothrombin activity will fall between 10 and 30 per cent, a safe yet effective bracket. Hemorrhage rarely occurs until the prothrombin activity is depressed to 5 per cent, unless some pathologic lesion is present in the kidney, gastrointestinal tract, lungs or brain.

The incidence of hemorrhage following the use of anticoagulants depends to some extent on the philosophy of the clinician, who may be inclined to "push" the dosage in the belief that it is more desirable to assure patients with cardiovascular disease full protection against thromboembolic complications, thus running some risk of hemorrhage, rather than to use a dose carrying with it so little chance of hemorrhage that it might fail to inhibit intravascular clotting. Physicians must make it their responsibility to see that prothrombin or clotting studies are accurately performed, as it now becomes plain that deaths from anticoagulants, other than in persons taking dicumarol® without medical supervision, ensues chiefly from poor laboratory control, while overdosage by the physician, concomitant ill advised surgical procedures and diagnostic error account for the remainder of anticoagulant-induced fatalities.

EPIDEMIC PLEURODYNIA

During August and September of 1947, 114 patients with "epidemic pleurodynia" were admitted to one Boston hospital.[1] The disease was characterized by fever and pleuritic pain, often accompanied by headache, abdominal pain and stiffness of the back and neck. From stored throat washings from typical cases Weller [2] and associates of Harvard University and Tufts College have recently isolated a virus antigenically related to the "Connecticut 5" virus previously isolated by Melnick [3] from a case of "nonparalytic poliomyelitis."

After intracerebral inoculation of 100 LD_{50} of the new virus into newborn mice, death usually takes place in three to six days. Necropsy usually shows two to three drops of light yellow fluid in the abdominal cavity, diffuse hepatitis and occasional pancreatitis. Older mice are more resistant, and one rhesus monkey showed no signs of infection by this virus.

Stored serums from patients during the first three or four days of the disease had no demonstrable antibodies against this virus. Serums collected from the same patients about 10 days later completely neutralized the virus. While tests with hyperimmune mouse serums showed an identity of the new virus with Melnick's "Connecticut 5" virus, no antigenic relation was demonstrated with certain other members of the Coxsackie group of viruses.

MIDCENTURY WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH

The actions taken at the recent Midcentury White House Conference, December 3-7, the fifth to be called at decennial intervals, will take root in the states and their communities to mold a new understanding of the influences that affect the healthy personality development of our children and youth. After 35 work groups, 30 panel discussions and seven general sessions, the 6,000 conferees adopted 201 statements of findings developed by the work groups, 66 recommendations promulgated by the work groups and screened through a special recommendations committee, a Pledge to Children, similar to the Children's Charter of 1930, and a Resolution on a Follow-up Program. Comparatively little of this material is concerned with medical care or even with health service as such. This little will be acceptable to most physicians and is not out of line with medical society policy. Most of the recommendations are concerned with the preservice and in-service training of professional personnel in all fields dealing with the developmental phases of childhood, parent education, agency responsibility, economics, education, social work, recreation, religion, the problems associated with war and the problems of minority groups.

The most important recommendations concern the continuing character of the program initiated by this conference. It has been recommended "that community groups and community leaders reexamine their attitude and procedures and make appropriate adaptations and changes . . . that to insure proper assessment, creative planning and appropriate action with respect to meeting the needs of children and youth, communities develop broad community interests, obtain the broadest possible community sponsorship, obtain necessary technical assistance, initiate and organize studies and gather facts and interpret the facts and inform the community of their significance." It is stressed that "people as individuals and as groups should be helped to help themselves . . . that greater emphasis be placed by the

1. Finn, J. J., Jr.; Weller, T. H., and Morgan, H. R.: Arch. Int. Med. **83**: 305 (March) 1949.
2. Weller, T. H.; Enders, J. F.; Buckingham, M., and Finn, J. J., Jr.: J. Immunol. **65**: 337 (Sept.) 1950.
3. Curnen, E. C.; Shaw, E. W., and Melnick, J. L.: J. A. M. A. **141**:894 (Nov. 26) 1949.

various professions on bringing the parents into participation in thinking and planning with and for children . . . and that citizen advisory boards and similar groups representative of the community be established for public services as well as private and that every effort be made to enable and secure participation by a cross section of the citizenry."

Before another year has passed, most states will have had a "little White House Conference" under the leadership of the state delegation that has just participated in the midcentury conference. All state agencies involved in the problems of children and youth will be invited to participate. Here the practicing physician, his local and state medical society, his health department and his voluntary health agencies can do yeoman service for the children and youth in his state and community. Here the physician has the privilege and opportunity to make constructive contributions to the healthy personality development of children and youth. Though a national conference may turn fine phrases and make broad recommendations, it is the citizen in a community who gets the job done, and the physician is such a citizen.

CONFERENCE COMMITTEE ON GRADUATE TRAINING IN SURGERY

In this issue is an announcement (page 1503) of the establishment of the Conference Committee on Graduate Training in Surgery, representing the Council on Medical Education and Hospitals of the American Medical Association, the American Board of Surgery and the American College of Surgeons. The establishment of the Conference Committee on Graduate Training in Surgery is the result of negotiations conducted over a two year period by the Board of Trustees, the Board of Regents of the College of Surgeons and the American Board of Surgery. At the Annual Session in San Francisco, the Board of Trustees approved the principles under which the Conference Committee was to be organized. Since these principles had previously been approved by the governing bodies of the other two organizations, the Committee received official status at that time.

The purposes of the Committee are to formulate uniform standards for residency training in surgery, to sponsor a single inspection service for hospitals offering such training and to approve and publish a list of acceptable residency programs. The first such list, approved by all three participating organizations, appears in this issue.

The uniform set of standards for evaluation of residency programs in surgery has already been approved by the three agencies, as published in the June 1950 Revisions of the Essentials of Approved Residencies and Fellowships. Since the establishment of the Conference Committee, field surveys of hospitals applying for approval of residency programs in surgery have been made by representatives of the Council's staff. This collaborative effort, eliminating as it does differing requirements for approval, as well as a duplication of work in inspection of hospitals conducting programs in surgery, on the part of the three agencies concerned should be generally welcomed. It is to be hoped that the pattern established in approving residencies in this specialty will be adopted in other areas of residency training, with similar beneficial results.

TULAREMIA PROPHYLAXIS

Reports of tularemia among laboratory workers have indicated a high incidence of infection due to Pasteurella tularensis approaching 100 per cent.[1] To avoid this danger prophylactic vaccination has been suggested.[2] The efficiency of such vaccination has been tested by Foshay [3] and associates of Camp Detrick, Maryland.

Two vaccines were tested: (*a*) a phenolized broth culture of P. tularensis and (*b*) an acetone-extracted vaccine of the same organism. In a preliminary test 0.5 cc. of one vaccine was given subcutaneously to 15 unselected subjects. Three suffered severe systemic reactions necessitating hospitalization. Subsequent study of serums drawn from them before vaccination showed that all three had circulating agglutinins for P. tularensis. All had been exposed to possible tularemia infection in the past.

In order to prevent additional severe reactions, prevaccination skin reactions and agglutinin titers were determined for each prospective subject. Those with positive skin reactions and high agglutinin titers were excluded. Eight hundred and nine subjects with negative reactions were then given one or more prophylactic injections. The toxic effects were no more than would be anticipated from the use of typhoid vaccine. Among those vacinated were 163 laboratory workers. Of these, 72 handled cultures or performed necropsies on infected animals. The remaining 91 washed glassware or did janitor service or maintenance repair.

Of the 72 vaccinated subjects, with maximum daily exposure, 22 (30.6 per cent) subsequently acquired laboratory infections with P. tularensis. This is approximately one-third the expected incidence among unvaccinated laboratory personnel under similar conditions of exposure. Among the 91 with less exposure only one acquired primary tularemia. The authors conclude from these data that, with precautions to exclude hypersensitive persons, prophylactic vaccination should be carried out on all those exposed to tularemia as an occupational or recreational hazard.

1. Lake, G. C., and Francis, E.: Pub. Health Rep. **37**: 392, 1922. Parker, R. R., and Spencer, R. R.: Pub. Health Rep. **41**: 1341, 1926. Weilbaecher, J. O., and Moss, E. S.: J. Lab. & Clin. Med. **24**: 34, 1938.

2. Foshay, L.: Am. J. Clin. Path. **2**: 7, 1932. Foshay, L.; Hesselbrock, W. H.; Witte burg, H. J., and Rodenberg, A. H.: Am. J. Pub. Health **32**: 1131, 1942.

3. Kadull, P. J.; Reames, H. R.; Coriell, L. L., and Foshay, L.: J. Immunol. **65**: 425 (Oct.) 1950.

ORGANIZATION SECTION

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE CLINICAL SESSION IN CLEVELAND, OHIO, DECEMBER 5-8, 1950

The actions of the House of Delegates at the Cleveland Session are herewith abstracted so that the readers may have this information in digest form. The complete proceedings will be made available, as in the past, in a booklet, which will be sent to all the members of the House of Delegates and officers of the American Medical Association by the Secretary. This booklet will not be available for several weeks.—ED.

General Practitioner of the Year

The House of Delegates had before it nominations of Dr. Jim Camp, Pecos, Texas, Dr. Dean Sherwood Luce, Canton, Mass., and Dr. John William Strange, Loogootee, Ind. On a second ballot, the House elected Dr. Dean Sherwood Luce of Canton, Mass., the General Practitioner of the year.

Address of Speaker

The Speaker presented the following address:

Mr. Speaker and Members of the House of Delegates of the American Medical Association:

Slightly less than six months ago this House met at San Francisco. Perhaps no previous legislative session in the history of this body approached either the volume or variety of significant actions taken. The few months that have elapsed since June 30 last have also seen evidences of the trend away from the radical road toward socialism and the dissolution of our liberties and the American Way of Life. But, Gentlemen, the victory is by no means won. I must again, as previously, warn you that while we have won signal victories in stemming frontal attack, we still face more or less insidious flank movements which, if successful, can and may prepare the way for ultimate regimentation and enslavement.

The House of Delegates, in the name of the American physicians for whom it speaks and acts, bears the full responsibility for defending the American people against any and all threats to the provision of the highest quality of service Medicine can provide.

The reports of the Board of Trustees, officers and councils as already published, and probably augmented by supplementary reports are ample evidence of the magnitude of the problems with which organized medicine most concerns itself. It is obvious to me that in recent years each session of this House finds itself facing more and increasingly complex problems. This will be no exception. In order, then, to give your fullest and best efforts at reaching sound solutions with the limited time available, consideration must be given to conservation of time, energy and orderly procedure.

For the benefit of those delegates serving for the first time and to refresh the memories of others, let me review briefly some details of procedure. May I do this categorically, for brevity's sake.

1. Have all formal resolutions typed in proper form, with adequate copies. A staff of typists is at your service.

2. When addressing the chair or House, announce clearly your name, the state or territorial association, the scientific section or government service you represent.

3. In presenting resolutions, please omit reading the so-called "whereases," but read carefully the resolutions to be acted on. The reasons and arguments for the resolutions can and must be read in the reference committees.

4. Attend the reference committee hearings to plead your cause and to assist the committee in reaching conclusions. Full and exhaustive discussions should take place in the reference committee rooms. It is as much the delegates' responsibility to attend reference committee hearings as it is for them to be seated in the House during its deliberations.

May I take this opportunity to express to the House of Delegates my personal satisfaction at having my right bower, your Vice Speaker, Dr. Reuling, back with me.

I am grieved to announce to you that my predecessor, Dr. Roy Fouts, is reported desperately ill, and I hope the House will extend to him our sincere wishes for recovery.

It is imperative that the business of this session be concluded by noon on Thursday. This is in order to permit a joint session of the House, the Coordinating Committee for the National Education Campaign and the "Committee of 53" for the purpose of receiving a communication which is of profound and far reaching significance.

The Speaker then read the names of the members of the Reference Committees.

Report of Reference Committee on Reports of Officers

The Reference Committee on Reports of Officers presented the following report, which was adopted:

Your committee wishes to commend the Speaker for the conciseness and accuracy of his address, the contents of which met with the full accord of the reference committee. It finds itself in complete agreement with the Speaker's statement to the effect that we must continue our fight against compulsory health insurance unabated.

It wishes to commend the Speaker further for his clear-cut instructions to the delegates giving them the details of the procedure to be followed so that there will be a unanimity in the work to be done.

Your committee cannot dismiss the Address of the Speaker without taking this opportunity to commend him highly for his efficiency, his impartiality, his fairness and his patience in conducting the affairs of this body.

Address of President, Dr. Elmer L. Henderson

President Elmer L. Henderson presented an address (see JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dec. 9, 1950, pages 1268-1269) and the Reference Committee on Reports of Officers, to which it was referred, reported as follows and its report was adopted by the House:

The Address of the President to this House of Delegates delivered on December 5 was in all ways characteristic of the manner in which our leader operates. His report was brief, concise and factual.

Your committee concurs with his statement regarding the value of our advertising campaign which campaign "marked the first time in the history of the United States that any profession, business or industry under government attack has been successful in rallying nationwide advertising support from thousands of unrelated groups, companies and individuals."

It feels that the 65,000 new-won friends of our profession will prove of great benefit to us, and that we can see a direct evidence of some of these benefits in the splendid articles now appearing in the Cleveland papers as well as those contributed by the press associations.

As our President states, the election results last month were "heartening and reassuring to the medical profession." Your committee adds to his its "praise and commendation for all doctors regardless of their party affiliation who as American citizens played their rightful role in public affairs and who fought for their convictions at the polls."

Your committee noted with regret the absence in the President's Address of any reference to the innovation of "The President's Page" in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. It feels that this page has the potentiality for great good and that it is an excellent means of direct contact between our President and the individual members of

this organization. Your committee is of the opinion that it has wide public relations opportunities and strongly recommends that "The President's Page" be continued.

Report of Secretary

The Reference Committee on Reports of Board of Trustees and Secretary, to which the Report of the Secretary (see THE JOURNAL, Oct. 21, 1950, pages 632-633) was referred, approved this report and was of the opinion that the service rendered by the Secretary should receive an expression of appreciation from the House.

Report of Board of Trustees

The Reference Committee on Reports of Board of Trustees and Secretary, to which the Report of the Board of Trustees (THE JOURNAL, Oct. 21, 1950, pages 633-663) was referred with certain exceptions, took actions as follows, which were adopted.

The following reports, included in the Report of the Board of Trustees, were not considered by this committee because they were sent to other reference committees by the Speaker: Matter of Free Choice of a Physician; Hospital Standardization; Report of the Washington Office; Report of the Assistant to the Manager, Department of Public Relations; Report of the Council on Industrial Health; Report of the Council on National Emergency Medical Service; Report of the Committee on Legislation; Report of the Committee on Blood Banks, and Report of the Committee on Rural Health.

MATTERS REFERRED TO THE BOARD OF TRUSTEES BY THE HOUSE OF DELEGATES

Your committee approves the action of the Board on matters that had been referred to it and reported on by the Board including Quality of Medical Care in the National Health Program; Resolution on Appropriation for Expenses of Section Delegates; Resolution on Costs of Medical Care; Resolution on Multiplicity of Meetings of Councils of American Medical Association; Resolution on Pilot Survey of Practitioners of So-Called Healing Arts; Resolution on Medical Care of Civilian Employees of Armed Forces; Resolution on Council on Federal Medical Services; Twelve Point Program, and Resolution from Section on Diseases of the Chest on Tuberculosis Among Indians.

The actions of the Board of Trustees on Dues, Entertainment of Foreign Guests, Place of 1952 Clinical Session, Student American Medical Association, Investment Policy, The Journal and Special Journals, Today's Health, Standard Nomenclature of Diseases and Operations, American Medical Directory, Library, Quarterly Cumulative Index Medicus and Report of State Journal Advertising Bureau and the Reports of Council on Pharmacy and Chemistry, Laboratories, Council on Physical Medicine and Rehabilitation and Council on Foods and Nutrition, Report of Bureau of Investigation, Report of Bureau of Legal Medicine and Legislation, Report of Bureau of Health Education, Report of Bureau of Exhibits and the Report of the Bureau of Medical Economic Research were approved by the committee and its report was adopted by the House.

Report of Washington Office

The Speaker referred the Report of the Washington Office in the Report of the Board of Trustees, (see THE JOURNAL, Oct. 21, 1950, pages 637-638) to the Reference Committee on Legislation and Public Relations, which presented the following report which was adopted:

Your committee notes with satisfaction the substantial expansion of this facility and that the many services rendered by this office have been received with interest by the profession. It particularly commends the interesting style used in the Bulletin and Capitol Clinic. It is obvious to your committee that this office has played an important role in reviewing legislation, supplying material to members of Congress, and also arranging for hearings on matters of interest to the medical profession. This activity continues to be of the utmost importance. It is interesting to note that several bills, including the Doctor Draft Law, favored by your Association have been enacted into law and that not a single bill opposed by American medicine has passed.

Report of Assistant to General Manager, Department of Public Relations

The Speaker referred the Report of the Assistant to the General Manager in the Report of the Board of Trustees (see THE JOURNAL, Oct. 21, 1950, pages 638-641) to the Reference Committee on Legislation and Public Relations, which reported as follows and its report was adopted:

In accordance with the expressed policy of the Association, your committee notes that the Department of Public Relations has greatly increased its activities during the past year and particularly would like to point to the establishment of excellent press relations which have included fine coverage of meetings such as the San Francisco Session, the World Medical Association and rural health. The spread of the various news services to even smaller newspapers is commendable. The cultivation of contacts with key organizations has done much to obtain the good will of these groups and this should be further explored.

Report of Council on Industrial Health

The Speaker referred the Report of the Council on Industrial Health in the Report of the Board of Trustees (see THE JOURNAL, Oct. 21, 1950, pages 648-649) to the Reference Committee on Industrial Health, which reported as follows and the report was adopted:

1. Civil Defense: Your committee welcomes the reactivation of the Committee and Consultants on the Industrial Medical Aspects of Civil Defense and urges that this group assume leadership in promoting the four subjects mentioned in this report. This work should go hand in hand with the activities of the Council on National Emergency Medical Service and with all government agencies affected.

2. Public Relations: As was reported in previous recommendations of the House of Delegates, opposition from certain labor leaders seems to be definitely an attempt to squeeze a compromise from the American Medical Association on other broad policies. Your committee recommends the effort to effect a joint committee composed of management, labor and American Medical Association, on health in industry program be continued in spite of setbacks from labor groups.

3. Multiphasic Screening: The Council has presented a seven-point program that is recommended for acceptance by the House of Delegates as a general statement of policy on this subject. Your committee strongly advises that any broad statement of policy of the American Medical Association on any subject be scrutinized thoroughly and be issued only when it would be a strengthening part of our entire program. Here we have a subject that is being pushed by those who believe in continued advance of social security programs by surveys of entire areas, as well as groups in industry. Your committee certainly favors physical examinations of employed groups by family doctors and industrial surgeons, and the use of statistical information obtained for bettering health, accident prevention and plant sanitation. On the other hand, screening by government agencies has developed into a springboard from which chain reactions emanate. The figures from group surveys have been followed by requests for appropriations to institute treatments or further study. This appropriation automatically recognizes and sets up another Social Security sub-group to carry out recommendations founded on this original survey findings. In a case in point, a survey costing thousands dug up six patients. A follow-up appropriation was requested. Your committee recommends that the subject of mass health surveys, either in industry or otherwise, be deleted from this report, as it is not a problem of industry in itself. General health and undiscovered pathology is the background of general health of the nation and should be the business of the family doctors rather than outside group doctors. Your committee recommends that in place of the paragraph deleted, the following be inserted: "Your committee recommends that industrial physicians continue their program of careful examinations of those in industry and the continued referral of those with coincidental disease to insure proper follow-up cure and assignment to suitable occupations of individuals with residual impairment.

4. Corporate Practice: The application of the principles of the Hess report to industrial practice is being well considered by the Bureau of Legal Medicine and Legislation. Its report is not complete at this time.

5. Professional Relations: Your committee compliments the Council on this part of the report, showing as it does the excellent cooperation and understanding that is being used with ancillary groups in industry and industrial health.

6. Industrial Nursing: More time is needed to cooperate with interested groups. The differences in state laws regarding the practice of nursing has made continued study necessary by the Bureau of Legal Medicine and Legislation before a policy acceptable to all concerned can be obtained.

7. First Aid Training, Accident Prevention, Workmen's Compensation: These have been dealt with in an exceedingly satisfactory manner and your committee commends this part of the report.

8. Industrial Health in England: Comments on this were short, and because of the visit of several Council members to England and the direct knowledge obtained your committee recommends that this subject be supplemented by a more detailed report with personal opinions from the Council.

9. Scientific Development and Education: Your committee commends the Council on the work accomplished and urges that the ideas expressed be followed up and the two committees named be activated as soon as possible.

Your committee wishes to call attention to the arduous and intelligent work done by this Council and congratulates the members and secretary on a job well done.

Report of Council on National Emergency Medical Service

The Speaker referred the Report of the Council on National Emergency Medical Service in the Report of the Board of Trustees (see THE JOURNAL, Oct. 21, 1950, pages 649-651) to the Reference Committee on Emergency Medical Service, which reported as follows and the report was adopted:

The committee is in full agreement with the Report of the Council on National Emergency Medical Service. Its concise report covers every essential detail necessary to the implementation of a Civil Defense program and procurement of medical officers for the armed services. In addition and as a further aid to the economical utilization of the limited number of physicians available to the nation at this time, the council has recommended that the American Medical Association urge that reserve medical officers not on active duty be utilized to the fullest extent to complete and execute a single final type physical examination of inductees, recruits and reservists that is acceptable to the armed forces, with point accreditation under public law 510 of the Eightieth Congress. It is understood that steps have already been taken by Secretary of Defense in this regard and that the Secretary of Defense has been commended for his action in the matter by the Board of Trustees.

Your committee feels that civilian defense will be with us for a long time and agrees with the report that the medical profession must exert a forceful, dynamic leadership in the civil defense program of the nation at national, state and local levels. It would therefore make the following recommendations: (1) that each of the state and territorial associations seek adequate representation on civil defense advisory committees at all levels of government; (2) that the American Medical Association request appointment of an advisory committee of civilian physicians in the new Civil Defense Administration; (3) that a copy of the report of the Council on National Emergency Medical Service be sent to secretaries of state and territorial associations and to the chairman of the Emergency Medical Service Committee in each state; (4) that the two remaining constituent associations without an Emergency Medical Service Committee be urged to appoint such a committee without delay. All other constituent associations have such a committee, but many are without a complete program; (5) that the Council on National Emergency Medical Service and the Committee on Blood Banks have some appropriate space in THE JOURNAL, so that information regarding the actions and recommendations of their respective committees be brought to the attention of our members and the various Emergency Medical Service Committees as promptly as possible. Your committee believes this would be a valuable means of keeping all informed of the latest developments in their programs. This recommendation does not imply any criticism of the Editor of THE JOURNAL in relation to publication of news of these matters in the past, but it feels that if the members knew that information relating to civil defense, blood bank and procurement of officers for the armed services was to be placed in some part of THE JOURNAL with a leading heading, it would help in the early dissemination of this information, and (6) that the Council on National Emergency Medical Service urge the state emergency committees in all the constituent organizations to complete their programs without further delay if they have not already done so, and stress the importance of their work in the over-all civil defense program.

Some of the states have already enacted a state civil defense law. Many others will probably do so in the near future and our state medical emergency committees should be active participants in the state civil defense commissions where such laws are enacted.

Dr. Alfred S. Hartwell, delegate from Hawaii, gave to the committee a most excellent booklet on Burn Therapy. It is the most complete treatise on burn therapy that your committee has seen, and it is submitting it to the Council on National Emergency Medical Service.

Report of Committee on Legislation

The Speaker referred the Report of the Committee on Legislation (see THE JOURNAL, Oct. 21, 1950, page 661) to the Reference Committee on Legislation and Public Relations, which reported as follows and the report was adopted:

The work of the Committee on Legislation covers a small section of the Report of the Board of Trustees, but it is obvious that this committee has spent much time in consideration of many bills and the members should be particularly commended for this work. Your committee wishes to note the excellence of the presentation of those who represented the American Medical Association before congressional committees and to state its appreciation of their competent services.

Report of Committee on Rural Health

The Speaker referred the Report of the Committee on Rural Health in the Report of the Board of Trustees (see THE JOURNAL, Oct. 21, 1950, pages 661-662) to the Reference Committee on Hygiene and Public Health, which reported as follows, and the report was adopted:

The committee considers the solution of the rural health problem is gradually being achieved through cooperative community effort. It gives credit to progress made, to the factors which have developed from the deliberations of the four National Rural Health Conferences, the most important being:

1. State and Local Public Health Services for general community hygiene; communicable disease control; public health nursing; well baby conferences and clinics.

2. Utilization of the Hill-Burton Hospital Construction Act in interested areas.

3. Interest of the medical profession and local organizations in provision of scholarships for medical students and nurses who may agree to return to a rural area to practice.

4. Building a better and more productive community and a better place in which to live, through agricultural school extension services.

5. Encouragement by Parent-Teacher Associations of preschool and school health examinations and immunizations; and profiting to a greater extent from the educational programs of voluntary health agencies—tuberculosis, poliomyelitis, cancer, heart and other foundations.

6. Greater participation in voluntary prepaid medical and hospital care plans; in such services offered by many farm groups; and development of plans to include the medically indigent and low income farmer.

7. Combined efforts of all groups in the community, to promote state and county health councils, and implement the activities of county health units in accord with recommendations of the Reference Committee on Hygiene and Public Health in its report at the St. Louis Session in 1948.

More than 750 farm and health leaders participated in the 1950 conferences. The committee plans an annual meeting to expedite the objectives just outlined, with emphasis on the formation of community health councils. The services of a secretary and a field director have widened the scope of activity, the latter having visited 23 states in recent months. Increasing interest has been indicated by the Extension Service, Farm

Bureau, National Milk Producers Association, National Grange and similar groups. A gratifying result has been acceptance of appointment as advisory members of Berry H. Akers, Editor of "The Farmer" and Paul Johnson, Editor of the "Prairie Farmer."

The Reference Committee on Hygiene and Public Health is in full accord with the objectives of the Committee on Rural Health and commends its accomplishments. No specific requests or recommendations requiring action by the House are presented by your committee.

Supplementary Report of Board of Trustees on Recommendation on Resolution on Free Choice of Physicians for Federal Employees

The following recommendation was presented by Dr. Louis H. Bauer, Chairman, Board of Trustees, and referred to the Reference Committee on Industrial Health:

Since the Handbook went to press, a report prepared by the Committee on Consultants on Workmen's Compensation has been received by the Council on Industrial Health. This report is to the effect that in the opinion of the Committee on Consultants the moment is not a propitious one to press for amendments to the Federal Employees' Compensation Act to provide for free choice of physicians, as requested in the resolution presented to the House of Delegates by Dr. J. Stanley Kenney of New York at the Atlantic City Session in June 1949.

REPORT OF REFERENCE COMMITTEE ON INDUSTRIAL HEALTH

The reference committee presented the following report, which was adopted:

The resolution on free choice of physicians for federal employees was originally introduced by Dr. J. Stanley Kenney of New York and referred first to the Board of Trustees, then to the Committee on Consultants on Workmen's Compensation of the Council on Industrial Health and finally to your committee.

Your committee does not recommend the acceptance of the report given by the Committee of the Council on Industrial Health, but recommends the adoption of the original resolution by Dr. Kenney, which is as follows:

WHEREAS, It is the custom of the United States Employees Compensation Commission to appoint designated surgeons in all localities where a U. S. Marine Hospital or Veterans Facility is not available for the care and treatment of injured employees; and

WHEREAS, All injured employees are directed to one of these designated surgeons when injured in line of duty; and

WHEREAS, Certain other branches of the federal government, namely, the Veterans Facilities, have recognized the free choice of physician plan in home treatment of veterans; and

WHEREAS, All injured employees in New York state enjoy this privilege under the New York State Compensation Law; now therefore be it

Resolved, That the Board of Trustees of the American Medical Association is hereby requested to seek amendment to the Federal Law on Workmen's Compensation to the effect that all covered federal employees be granted free choice of physician for injuries sustained in line of duty.

Supplementary Report of Board of Trustees on Clinical Sessions

The following Report of the Board of Trustees on Clinical Sessions was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

1953 Clinical Session: Invitations for the 1953 Clinical Session were received from the following cities: Atlantic City, Boston, Los Angeles, Miami, Minneapolis and St. Louis. The Board of Trustees selected St. Louis, but the exact date has not as yet been set.

Date for Denver Session: The first week in December has been selected for the 1952 Clinical Session which is to be held in Denver.

Continuation of Clinical Session: The Board of Trustees would like to have an expression from the House of Delegates as to whether it feels that the clinical sessions of the Association are worth while and should be continued.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

The reference committee reported as follows and the report was adopted:

Article 2 of the Constitution of the American Medical Association states "The objects of the Association are to promote the science and art of medicine and the betterment of public health." Your committee heard many witnesses regarding this subject, including officers, members of the Board of Trustees, the Council on Scientific Assembly and others. It is the opinion of your committee that in view of Article 2 of the Constitution, which essentially states that the primary purpose of the American Medical Association is to promote the science of medicine, and after noting the results of a survey made following the St. Louis Clinical Session and the fact that there has been increasing attendance at these sessions, the Clinical Sessions should be continued. It suggests that the Board of Trustees and the Council on Scientific Assembly consult with the officers of the Section on General Practice for advice regarding possible continued improvement in the scientific program. It approves of the action of the Board of Trustees in this supplementary report regarding the 1953 Clinical Session and the date for the Denver Session.

Since it has been brought to the attention of the committee that several delegates at this and previous clinical sessions have arranged transportation home in advance of adjournment of the House of Delegates, your committee hopes that in the future the Board of Trustees will specify the dates when it is anticipated the House will meet so that there can be no misunderstanding on the part of the delegates.

Supplementary Report of Board of Trustees on Hospital Standardization

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following report, which was referred to the Reference Committee on Medical Education:

The Board of Trustees appointed a committee to confer with the Board of Regents of the American College of Surgeons and with representatives of the American Hospital Association and the American College of Physicians, with a view to arriving at a satisfactory solution to this problem. At the last meeting of the joint committee, it was suggested to establish a joint commission on hospital standardization to be composed of 18 members representing the four organizations. A rough draft of a proposed constitution and by-laws has been prepared and a copy of it has just been given to the Board of Trustees for study. Negotiations are still going on and much progress has been made. Every effort is being made to reach satisfactory arrangements.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION

The reference committee presented the following report, which was adopted:

Your reference committee has given very careful consideration to the statement of the President in his Presidential Address, and to the Supplementary Report of the Board of Trustees in reference to the problem of hospital standardization. Hearings on this report were attended by a large number of members and Fellows, officers and trustees of the American Medical Association, and members of other organizations including executive secretaries and legal representatives.

Your committee appreciates and commends the Board of Trustees on the great amount of effort which has been given to the solution of this problem in the last several months. In June 1950 the Board of Trustees was suddenly faced with a very acute and serious problem which had many implications in regard to the standardization of hospitals. When this problem was presented to the Board of Trustees it seemed almost insurmountable but due to their immediate action and energy great progress has been made toward a satisfactory solution.

After serious consideration of the report and all of the discussion, your committee recommends approval of the action of the Board of Trustees up to this time and also recommends that the study be continued until a satisfactory plan for the standardization of hospitals has been devised.

Supplementary Report of Board of Trustees on Dues

The following report was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The Board considered the question of the payment of dues in the American Medical Association by physicians who are regarded as hardship cases; that is, those physicians who, for

one reason or another, are charged lower local dues and those physicians who can pay local dues but find it a hardship to pay American Medical Association dues, and decided to make the following recommendations to the House of Delegates:

1. If a physician pays only partial dues in his county and state society due to hardship, he will be exempted from payment of American Medical Association dues but will not receive THE JOURNAL; this exemption, however, will not be granted except on written recommendation of the secretary of the county or state society that it would be a hardship on the physician to pay the regular dues.

2. If a physician pays full dues in his county and state society, he must pay full dues in the American Medical Association.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

The reference committee presented the following report which was adopted:

Your reference committee approves of this report.

Supplementary Report of Board of Trustees on Committee to Study Public Relations

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following report which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The Board of Trustees has appointed a committee to undertake a study of the public relations of the Association and to draft recommendations as to the future course to be pursued. This committee consists of Dr. Gunnar Gundersen, chairman, and Dr. Edwin S. Hamilton, to represent the Board; and Dr. B. R. Kirklin to represent the House of Delegates. It is hoped that a preliminary report will be made at the February meeting of the Board and a final report rendered to the House of Delegates in June 1951.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

The reference committee presented the following report which was adopted:

Your reference committee approves the action of the Board of Trustees in appointing this committee.

Report of Committee on Blood Banks

The Speaker referred the following report of the Committee on Blood Banks to the Reference Committee on Emergency Medical Service:

Through its Committee on Blood Banks, the American Medical Association has cooperated with the American National Red Cross in a national blood procurement program. The several actions of the House of Delegates and of the Committee on Blood Banks regarding blood bank matters from June 1947 to August 1950 have been summarized in a report by the committee at its most recent meeting. The report was submitted to the Board of Trustees on Sept. 15, 1950, which approved it and authorized its publication. Copies may be obtained from the Bureau of Medical Economic Research at Association headquarters. This report contains the full text of the agreement reached in Boston by the several interested groups, and the complete text of the letters from the Secretary of Defense and from the National Security Resources Board designating the American National Red Cross as the military and civilian agency in blood bank matters and the letters of acceptance from the American National Red Cross.

The House of Delegates has endorsed the idea of a national blood procurement program under the auspices of the American National Red Cross. As problems have arisen, the American National Red Cross has at different times expressed a desire to solve them and has made specific agreements with the American Medical Association. In these agreements the American National Red Cross accepted liaison with the American Medical Association through the Committee on Blood Banks. It has been agreed that, to insure safety to recipients, the responsibility for technical details must rest on properly trained personnel under the control of local or state medical societies, and that local control must be exercised by the county medical society, which should be the initial contact in the contemplation of inauguration of a new blood bank. No publicity or news releases are to be issued except by mutual consent of the local county medical society and the local chapter of the American National Red Cross. Differences of opinion in establishment or operation of a blood bank in either administrative or technical detail are to be arbitrated at state levels by joint committees from the state medical society and the American National Red Cross. It has been generally agreed that the principle of blood replacement by the patient, his family, his friends or his organizations is sound, and interbank exchange of blood on a unit for unit basis should be encouraged.

On July 11 and 12, 1950, at a meeting in Boston of the Committee on Blood and Blood Derivatives of the American National Red Cross, together with its Medical Advisory Committee on the National Blood Program, there were present, by invitation, representatives of the American Medical Association, the American Hospital Association and the American Association of Blood Banks. The following agreement, drawn up at this meeting, sets forth the relation among these four organizations in peacetime and in the event of a national emergency:

Representatives of the American Medical Association, American National Red Cross, American Association of Blood Banks and the American Hospital Association have been meeting to aid in the development of the best possible blood transfusion service for physicians, hospitals and patients who use the blood—in fact, in the interest of national unity throughout the country. After carefully considering the information available, these representatives declared that it seemed advisable to cooperate with the National Security Resources Board by, in time of peace, providing for free exchange of blood between the American National Red Cross Regional Blood Centers and blood banks operating under other auspices on a unit for unit basis whenever and wherever it is needed to serve to the best advantage the interest of the community. It seems advisable for such units to be the property of the recipient blood bank to be used in accordance with its usual policy of issuing blood. As a principle, the groups favor making surplus blood available to the American National Red Cross or other agencies processing blood for the purpose of converting it into derivatives for the benefit of the people. By "surplus blood" is meant all blood that is not required for use as whole blood, plasma or any other derivative by the blood bank concerned.

In the event of a disaster or a national emergency, the American National Red Cross, the American Medical Association, the American Hospital Association and the American Association of Blood Banks favor in those communities not served by an American National Red Cross Regional Blood Center the establishment of such a center and/or the use of existing blood bank facilities to procure the necessary amount of blood. The method to be used should be determined in a manner which meets the approval of the county medical society and the local blood banks and hospitals. Furthermore, the operation of the local blood bank facilities for civilian need should not be interfered with by the emergency program so far as consistent with government regulations existing at that time.

There is definitely a need for the use of standardized equipment and methods for the procurement and dispensing of blood; this is imperative in a national emergency and desirable in time of peace. To insure minimum standards all blood banks cooperating in such a procurement program should meet the minimum standards of the National Institutes of Health.

The Committee on Blood Banks heartily approves the agreement reached in Boston and has been notified of approval by the Board of Trustees. The committee recognizes that the *modus operandi* of this agreement will necessitate many adjustments to meet local conditions. From time to time the committee will report to the Board of Trustees plans for implementation of this agreement with the recommendation that they be published. At an early date the American National Red Cross will request the cooperation of a number of cities in the procurement of blood. When a community is thus selected, the professional groups interested will be invited to work out a program of procurement most suitable for that particular community. This group will include the local Red Cross chapter, the county medical society, local hospitals, local blood banks, if any, and probably the local public health officer.

The American National Red Cross has been designated by the Secretary of Defense as the official procurement agency for blood and blood derivatives for the needs of the armed forces, and the National Security Resources Board has similarly designated the American National Red Cross "to accept the responsibility of coordinating a nationwide civil defense blood program for recruitment of donors and collecting, storing, processing, and preparing for shipment of blood and blood derivatives."

All federal agencies designating the American National Red Cross in blood procurement will charge this organization with

the responsibility not only of blood procurement but also of securing necessary correlation and cooperation of other agencies interested in blood procurement. The Department of Defense expects to reimburse the American National Red Cross for actual costs incurred in procurement of blood and blood derivatives for the armed forces.

In its study of the blood bank resources of the United States and possessions, the Bureau of Medical Economic Research of the American Medical Association has found that the 34 regional centers of the American National Red Cross issue less than 15 per cent of the blood used as whole blood. The rest is issued by hospital and nonhospital blood banks. Hence the American National Red Cross must rely on the cooperation of the other blood banks which are currently procuring most of the blood. The American National Red Cross believes it can double its output with present centers and equipment.

The Committee on Blood Banks is of the opinion that a large scale emergency blood program, whether regional or national, can be successful only if the American National Red Cross has the willing and wholehearted cooperation of all other agencies in the blood procurement field. It believes that other blood banks can procure emergency blood under the special motivation that would exist and channel it through the American National Red Cross to the official agencies for which it procures. Joint efforts at the regional, state and local levels are indispensable.

The Committee and the American National Red Cross at their meeting on Aug. 13, 1950 agreed to ratify and confirm all previous agreements, including the "Boston Agreement"; that the American National Red Cross encourage its local chapters, on request of a blood bank cooperating in the emergency program, assist in the procurement of donors for the cooperating blood banks; that in event of local disaster, blood requisitioned from local blood banks by the American National Red Cross be entered as a credit to that bank as in interbank exchange, and that the American Medical Association offer its wholehearted cooperation in the National Emergency Blood Program and encourage other interested organizations to offer theirs.

To assure that this cooperative plan of blood procurement be fully effective, the American Medical Association has recommended to the American National Red Cross that the regional, state and local coordinating organizations of the American National Red Cross Blood Program include full and adequate representation of physicians, hospitals, non-Red Cross blood banks and health departments, state and local. It was also recommended that all public relations, publicity and campaign efforts emphasize the cooperative nature of the National Blood Program, listing the names of the cooperating organizations, and in local areas adding the names of the cooperating blood banks and hospitals. The American Medical Association has further recommended to Mr. W. Stuart Symington, Chairman, National Security Resources Board, that the National Security Resources Board's Advisory Committee on National Emergency Blood Program be continued. The American Medical Association has also recommended to the Department of Defense, the National Security Resources Board and the American National Red Cross that, in deriving formulas for cost reimbursement, consideration be given to the necessity of having such formulas applicable to other agencies cooperating in the emergency blood procurement program.

The Board of Trustees has approved the study of the annual costs of accreditation of blood banks and the problem of integrating such a program with the present hospital inspection program of the Council on Medical Education and Hospitals before steps are taken to carry out the action of the House of Delegates on this matter. This study will be made jointly by representatives from the Committee on Blood Banks, the Council on Medical Education and Hospitals and the Bureau of Medical Economic Research.

After consultation with various advisors, the Committee on Blood Banks concluded that mass typing of the general population is costly and inadvisable for technical reasons, including that of hazards to the patient introduced by dependence on such typing. Previous experiences in mass typing have been disturbing rather than reassuring. On the advice of federal officials, the committee stressed the importance of increasing the production of blood substitutes as well as whole blood in the present emergency.

Criticism of the policy expressed in the above paragraph was submitted by Dr. A. C. Ivy, First Vice Chief Deputy, Emergency Medical and Public Health Services, Chicago Civil Defense Organization, in a letter to the Editor of THE JOURNAL. Dr. Ivy's letter was referred to Dr. Leonard W. Larson, Chairman of the Committee on Blood Banks of the American Medical Association. Dr. Ivy's letter and Dr. Larson's comment were published in THE JOURNAL, October 28, 1950, page 780.

Supplementary Report of the Committee on Bood Banks

Dr. Leonard W. Larson, Chairman, presented the following report, which was referred to the Reference Committee on Emergency Medical Service:

This report is a supplement to the Report of the Committee on Blood Banks.

Events which have transpired since the meeting of the House last June have greatly complicated the committee's efforts to correlate and coordinate blood banking in the United States for the threefold purpose of furnishing an adequate supply of blood for regular civilian needs, for the military establishment and for civilian emergency needs. So far as the procurement of blood is concerned, we are faced at this time with the emergency we have long been planning to meet. The responsibilities placed on the American National Red Cross both by the Department of Defense and by the National Securities Resources Board as indicated in the printed portion of our report have been greatly augmented by the events of the past few weeks and demand the full cooperation of every American agency in any way related to blood procurement. In this cooperation the American Medical Association has a leading part.

The committee would desire to emphasize that at this time the national emergency blood program is and must continue to be a three-pronged activity, each part of which must be developed to keep the whole program in balance. These three parts are (1) the maintenance of supplies of blood and plasma for normal civilian requirements, (2) the furnishing of whole blood and plasma to the Armed Forces of the United States and (3) the development of dispersed reserve supplies of equipment for collecting blood and dispersed reserve supplies of blood plasma for civilian defense.

The Red Cross has been exerting continuous pressure on all of its regional blood centers by increasing their quotas of blood procurement for military emergency needs. While these regional centers will very shortly be procuring much more blood than the stepped up quotas they are now meeting, the American National Red Cross relies on the participation of all other blood procuring agencies in the national emergency blood program.

At a meeting of all participating organizations held in Washington in September, it was agreed that the American National Red Cross should set up in various cities in the United States special defense blood collection centers, and that in the cities so designated local committees of all participating organizations would determine what in the opinion of the local committee was the best method of collecting blood in its city. The committee reemphasizes its previous recommendation that full credit be given in publicity at the local level to all participating organizations and that this recommendation be called to the attention of the new president of the American National Red Cross.

Under the national emergency blood program contractual relationships have been established with all companies equipped to process blood into dried plasma and serum albumen. The capacity of these plants is being expanded and during 1951 the blood requirement will likely strain the facilities and personnel of all existing blood banks in the United States. The first shipment of whole blood to Korea was made on Aug. 25, 1950, and many shipments of type "O" blood have been made since. These have been made possible both through the increased quotas of Red Cross regional blood centers and also through

the active participation of many other blood banks, particularly of those located on the West Coast.

The pattern of cooperation in the blood program will vary according to local conditions in the several states. The committee recommends in order to avoid duplication and overlapping of effort and the confusion resulting therefrom, that each state medical society see to it that a state committee on blood banks be established whose function it would be to correlate the elements of the emergency blood program in its state and to see that the blood procured is properly channeled. These committees should include representation from hospitals, blood banks and the Red Cross.

The committee has had the benefit of valuable and helpful information furnished by Drs. Albert E. Heustis, George D. Cummings and J. H. Ahronheim, Col. A. D. Howell of the State of Michigan and Dr. Lamar Soutter of Massachusetts regarding their current and planned programs for public participation in the emergency blood program.

The committee is of the opinion that the most important problem in the blood program facing the American people is the procurement of large amounts of blood and plasma for military and civilian defense purposes and the dispersal of plasma and of blood equipment intended for civilian defense uses to strategic points in the United States and possessions. The American Medical Association at this time urges the President and the Congress of the United States to make available at the earliest possible moment the necessary funds to expedite this program. The Association also urges on all community leaders in the United States that no steps be taken at this time which will divert public attention from the main problem. It is most likely that a complete and fool-proof civil defense program for the United States which would cover all risks could conceivably bankrupt the country; therefore, it is necessary in this field, as in all others, that concentration must be focused on the principal objectives with certain calculated risks.

A system of voluntary accreditation of blood banks should remain among the aims of the American Medical Association. In view of current conditions, however, the committee recommends deferring the question for the present. Meanwhile, blood banks participating in the national emergency blood program should meet, as a minimum, the standards of the National Institutes of Health.

The committee is continuing its statistical study of blood banks to obtain data on capacity and utilization. The special blood bank questionnaire sent in July to all blood banks listed in Bulletin 75 of the Bureau of Medical Economic Research has revealed that, in the event of a grave disaster, the number of donors who can be bled simultaneously can be increased threefold by hospital blood banks and twofold by nonhospital blood banks and Red Cross regional blood centers. (This refers to *present* equipment and personnel and to *simultaneous* bleeding capacity—not to the total amount of blood which could be drawn in one week or one month.) The amount of blood used annually by all hospitals can be estimated again only after analysis of the replies to the questions on blood included in the current hospital questionnaire for 1950 sent by the Council on Medical Education and Hospitals to all registered hospitals. The two analyses will be combined into a single study which should be completed before the next meeting of the House of Delegates.

Report of Reference Committee on Emergency Medical Service

The Reference Committee on Emergency Medical Service to which these reports were referred reported as follows and the House adopted its report:

The report of the Committee on Blood Banks and its supplementary report is an outstanding contribution to a subject that is deserving of our most important consideration in the present emergency. A perusal of the reports is indicative of the careful thought and study given the matter.

The report covers in detail the agreement at a meeting in Boston July 11 and 12, 1950, of the Committee on Blood and Blood Derivatives of the American National Red Cross, together with its Medical Advisory Committee on the National Blood Program. At this meeting by invitation were representatives of the American Medical Association, the American Hospital Association and the American Association of Blood Banks. The agreement sets forth the relation among these four organizations in peacetime and in the event of a national emergency. The Committee on Blood Banks approved the agreement reached in Boston, and it has also been approved by the Board of Trustees.

The committee is of the opinion that the most important problem in the blood program at this time is the procurement of large amounts of blood and plasma for military and civilian defense purposes and blood equipment intended for civilian defense uses at strategic points in the United States and its possessions. Your committee concurs in this opinion.

In its supplementary report the committee recommends that a state committee on blood banks be established in each state whose function would be to correlate the elements of the emergency blood program in its state. Your committee approves of this recommendation.

In the opinion of your committee, we are faced with a real emergency. The time for talk is past. The time for action is here. Let us be realistic. The Committee on Blood Banks has told you what must be done. They cannot do it, neither can it be done at 535 North Dearborn Street. What we need is more blood and blood derivatives. This can only be done by expanding existing blood centers and establishing new ones in hospitals and laboratories and training the personnel necessary for this increased program. This can best be done, in our opinion, on the state and local levels with the full cooperation of the American Red Cross and every other American agency in any way related to blood procurement. And speaking of cooperation, your committee thinks it is hardly necessary to call your attention to the leading part the American Medical Association has taken in this movement.

It would therefore recommend (1) that the Board of Trustees, through whatever committee it may designate, strongly urge that a state committee on blood banks be promptly established in all its constituent associations, if not already established; (2) that these committees be advised of the necessity of full cooperation with all other agencies engaged in blood procurement programs; (3) that this state committee on blood banks proceed to develop promptly a blood program, having in mind the statement in the supplementary report that it must be a three-pronged activity, each part of which must be balanced to keep the whole program in balance, and (4) that a copy of the report of the Committee on Blood Banks and of its supplementary report be sent to the secretary of each constituent association for the information of its blood bank committee if in existence or to be established. Your committee trusts that all the delegates will carry back to their associations the information and recommendations of the Committee on Blood Banks and convey to their officers the emergency we are facing and the importance and the necessity of their prompt cooperation in the blood procurement program.

Report of Judicial Council

Dr. E. R. Cunniffe, Chairman, Judicial Council, presented the following report, which was referred to the Reference Committee on Medical Education:

This report will deal with activities of the Judicial Council since the American Medical Association Clinical Session held at Washington in December 1949.

Several meetings have since been held, one on May 5, 1950 in Chicago, several in June in San Francisco and a subsequent meeting on September 29 in Chicago.

The questions presented at these meetings consisted frequently of complaints concerning the ethical conduct of individuals suspected of violating the Principles of Medical Ethics which should first have been considered by the county medical society. Such complaints are frequently referred by the Council back to the component society since they are the only organizations in our federated association with penal powers. An original decision by the Judicial Council in answer to some of these communications would prejudge the accused member and he, as an appellant, would then come for his final hearing to a prejudiced court.

Other questions were answered personally by the chairman, expressing merely his own opinion with the assurance that the subject matter would be submitted to the Judicial Council for its decision at the next meeting.

There were also considered the applications of candidates for Fellowship whose eligibility was questioned. Also those names presented for Honorary or Affiliate Fellowship were considered and recommended for election by the House of Delegates.

The following portion of the report of the Committee on Hospitals and the Practice of Medicine was referred to the Council by the Board of Trustees for opinion:

"If and when a physician is found to be unethical by the proper authorities as established through channels specified in the Constitution and By-Laws, and he is still retained on the staff of any hospital approved for resident or intern training by the Council on Medical Education and Hospitals, it shall be the duty of the Judicial Council to request the Council on Medical Education and Hospitals to show cause as to why that Council should not remove such hospital from the approved list under the assumption that the hospital is just as unfit for the training of young physicians for unethical reasons as it is unfit because it may not or does not have proper filing systems for its laboratory or clinical records."

After due consideration the Council approves this portion of the report, and suggests modification of this section, deleting the words ". . . to show cause why that Council should not remove such hospital from the approved list." The modification would read as follows: "It shall be the duty of the Judicial Council to request conference with the Council on Medical Education and Hospitals on the advisability of removing such hospitals from the approved list."

At the last meeting of the House of Delegates, the following supplementary report of the Committee on Hospitals and the Practice of Medicine was referred to the Judicial Council:

"The Committee believes that if the following pattern were followed the possibility of solving any controversy between physician and hospital would be greatly improved:

"When a physician believes he has a legitimate complaint against hospital management, he should first attempt to solve the difficulty at the staff level. And it is incumbent on the medical staff to assist in arriving at a fair and proper solution.

"If no solution is reached at this level, the physician should appeal to the appropriate committee of his county medical society for advice and assistance. The county medical society committee should develop methods for contacting hospitals, management and boards, as well as local associations representing hospitals, in order that all sides of the controversy may be understood and personality difficulties minimized.

"When a solution seems impossible through the good offices of the county medical society, mechanisms should be available for presentation of the matter to the state medical association of which the physician is a member. Here, again, for the purpose of receiving all available facts and opinions, the state medical association should develop liaison with the state hospital association.

"To facilitate the consideration and mediation of physician-hospital controversies, specific authorization to handle such matters should be given to some committee of both county and state medical societies. In the larger county societies and the state associations this function could be best carried out through a special committee created for just this purpose. It should be the function of such committees to mediate differences in the light of the existing state laws, the Principles of Medical Ethics and the best interests of the patients.

"The services of the Correlating Committee on Extension of Hospitals and Other Facilities of the Council on Medical Service, working with a similar committee of the American Hospital Association, should be available to study and assist in solving physician-hospital problems which seem unsolvable at the local and state levels. For formal opinion or adjudication, however, the portfolio should be presented to the Judicial Council."

The Judicial Council approves of this report and feels its recommendations should be accepted by all state associations and component societies and steps taken to expedite the carrying out of the provisions of this program. The Council note with satisfaction that several such committees have already been appointed by several state associations and component societies.

Members of the Judicial Council particularly enjoy the not infrequent requests that are received from other professional groups for advice or for copies of the Principles of Medical Ethics as a guide to the development of similar guidance in professional conduct.

Students taking ethics for the subject of a thesis ask for copies of the booklet of Principles and seek our advice on related subjects. The Principles of Medical Ethics are acknowledged to be the highest of any profession except that of the clergy, whose principles are derived from the tenets of their individual religion. All these should lead to united effort to maintain our exalted ethical standards.

Respectfully submitted,

EDWARD R. CUNNIFFE, Chairman.
WALTER F. DONALDSON.
H. L. PEARSON JR.
J. B. LUKINS.
LOUIS A. BUIE.
GEORGE F. LULL, ex officio.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION

The reference committee presented the following report, which was adopted:

After due consideration your reference committee recommends that the report of the Judicial Council be approved and further recommends that the House of Delegates concur in its recommendations.

Supplementary Report of Board of Trustees on Federal Aid to Medical Education

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following report, which was referred to the Reference Committee on Medical Education:

The American Medical Association has been asked whether it would modify its stand on federal aid to medical education for the period of the emergency.

The following points should be borne in mind:

1. All medical schools are at present operating at or nearly at capacity. Enrolment in medical schools is at an all time high.

2. Any further increase in enrolment can be accomplished only in one of two ways: (*a*) by increasing physical facilities and teaching personnel or, (*b*) by decreasing standards in medical education.

3. Even if increased enrolment were now possible, it would be four years before any additional doctors could graduate. To increase enrolment by increasing physical facilities will require considerably longer than the four years above mentioned.

4. Therefore, it is doubtful if the emergency can be helped no matter what procedure is adopted and the problem should be considered rather from its long range aspect.

The attitude of the American Medical Association on federal aid to medical education has been misconstrued and often deliberately so.

The American Medical Association would not oppose federal aid to medical education if it could be assured of two things: First, that any legislation would guarantee absolute freedom of medical education from government control; second, that all sources of private support for medical education have been exhausted. Up to the present, neither of these is assured.

The American Medical Association recognizes that some medical schools are now in financial difficulties, and in view of the national emergency may face greater ones. The extent of these financial difficulties has not been made clear. Recognizing the greater or less need for financial assistance to medical schools beyond what they are now receiving, the American Medical Association nevertheless believes that further efforts should be made to obtain these funds from private sources. Furthermore, the Association is willing to lend its support to a campaign for raising funds for medical education

among the professions, industry and labor. It urges that such an all out drive be started immediately.

In formulating any plan for emergency medical service, consideration should be given to several factors: 1. Economical use of medical man power by establishing and maintaining a proper balance between military and civilian needs; 2. Provision for rotation of doctors in the armed services so as to equalize the burden on the individual and disrupt as little as possible the teaching faculties and thus allow for a continuous progression of trained specialists and practitioners into the active professions; 3. The flow of properly trained students into the medical schools should be continued at the present or a greater level; 4. Postgraduate instruction should be maintained or increased so as to provide the number of doctors required not only in specialties but in general practice.

Report of Reference Committee on Medical Education

The reference committee presented the following report which was adopted:

Your reference committee recommends approval of this report.

Report of Interim Committee on Constitution and By-Laws

Dr. Joseph D. McCarthy, Chairman, presented the following report:

Mr. Speaker and Members of the House of Delegates:

RESOLUTION ON AMENDMENTS TO CONSTITUTION AND BY-LAWS FOR ADDITION OF COMMITTEE ON CONSTITUTION AND BY-LAWS TO STANDING COMMITTEES

WHEREAS, The Interim Committee on Constitution and By-Laws believes that it is important that the American Medical Association have a permanent Committee on Constitution and By-Laws so that the Constitution and By-Laws of the American Medical Association may be kept up to date and that suggestions and resolutions which would amend the Constitution and By-Laws may be given careful study; and

WHEREAS, The Interim Committee on Constitution and By-Laws is unanimously of the opinion that a special committee should be provided which would act during the interim between meetings of the House of Delegates of the American Medical Association as a fact finding and advisory committee relative to matters pertaining to the Constitution and By-Laws so that the House of Delegates would have the benefit of its research; therefore be it

Resolved, That Chapter X of the By-Laws, Section 4(B) be amended to include a new final paragraph which will read as follows:

The standing Committee on Constitution and By-Laws shall consist of five Member or Service Fellows elected by the House of Delegates on nomination of the Board of Trustees for terms of five years, so arranged that at each annual session the term of one member expires. At the 1951 annual session one member shall be elected for a term of one year, one for two years, one for three years, one for four years and one for five years. The President, Secretary, Assistant Secretary, a member of the Board of Trustees and the Speaker and Vice Speaker of the House of Delegates shall be ex officio members of this committee without the right to vote.

and to include a new paragraph (5) under (I) DUTIES, as follows:

This committee shall be a fact finding and advisory committee on matters pertaining to the Constitution and By-Laws. It shall report to the House of Delegates.

SINGLE MEMBERSHIP CLASSIFICATION

The Interim Committee on Constitution and By-Laws was instructed by the House of Delegates during the 1950 Annual Session to study the merits of proposals made by some to amend the Constitution and By-Laws whereby it would provide for one general classification of members. This single membership classification would entitle all members to all rights and privileges now accorded to members and Fellows.

Your committee has deliberated this question at length, each member stating his reasons in writing for his ultimate conclusions.

The opinions expressed by the individual members unanimously oppose any amendment to the Constitution and By-Laws which would change the present distinction between a member and a Fellow.

The Interim Committee on Constitution and By-Laws recommends to the House of Delegates that the membership and Fellowship classification provided for in the 1950 edition of the Constitution and By-Laws be retained.

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

The following proposed amendments to the Constitution and By-Laws have been given serious consideration by your committee, which unanimously recommends their adoption.

The amendments to the Constitution will lay over until the next meeting of the House of Delegates. The amendments to the By-Laws, following the recommendations of the Reference Committee on Amendments to the Constitution and By-Laws, can be adopted at this session.

Constitution

1. Amend Article 5, Section 1 (B) to read: "Associate Members.—Associate membership in the American Medical Association shall be limited to those members of constituent associations who are not active members of the American Medical Association or the constituent association and who hold the degree of Doctor of Medicine or Bachelor of Medicine, subject to the provisions of the By-Laws."

Amend Article 5, Section 1 by adding new paragraph: "(C) A member shall retain his active or associate membership as long as he complies with the provisions of the Constitution and By-Laws and with the Principles of Medical Ethics of the American Medical Association."

2. Amend the last sentence of Article 6, Section 2 so that it will read: "The general officers, the past Presidents of the Association, the General Manager, the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the chairmen of the several standing committees and two delegates elected by the Student American Medical Association shall be ex officio members of the House of Delegates without the right to vote."

3. Amend the first sentence of Article 6, Section 3, so that it will read: "The number of delegates from the constituent associations shall be proportional to the number of dues paying active members of the American Medical Association in the respective constituent associations as provided in the By-Laws."

4. Amend Article 11 so that the first sentence will read: "Funds may be raised by equal annual dues or by assessment on each of the active members on recommendation by the Board of Trustees and after approval by the House of Delegates."

By-Laws

5. Amend Division One, Chapter II, Section 2, the first sentence, so that it will read: "Sec. 2. Dues.—Annual dues may be prescribed for the ensuing calendar year in an amount recommended by the Board of Trustees and approved by the House of Delegates."

and amend the same paragraph by inserting the following new third sentence, "The Board of Trustees may excuse a member from paying dues when it is deemed advisable, provided that he is excused from the payment of full dues by his component society and constituent association."

and further amend the last sentence of the same paragraph by deleting the words, "such subscription to begin Jan. 1, 1951," so that the sentence will read: "Dues shall include subscription to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION."

Amend the same Section 2 of Chapter II, so that it shall read: "An active member is delinquent if his dues are not paid by December 31 of the year for which dues are prescribed and shall forfeit his active membership in the American Medical Association if he fails to pay the delinquent dues within 30 days after the notice of his delinquency has been mailed by the Secretary of the American Medical Association to his last known address."

6. Amend Division Two, Chapter IV, Section 2, the fifth paragraph, so that the first two sentences will read: "A Member Fellow shall pay annual Fellowship dues which shall be determined by the Board of Trustees and announced in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. It shall be the privilege of a Member Fellow to subscribe for any other scientific journal published by the Association in lieu of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION to which he is entitled as a member."

and further amend Division Two, Chapter IV, Section 2, so that the last sentence of the fifth paragraph becomes a new paragraph.

7. Amend Division Two, Chapter IV, Section 2 (C), last sentence to read: "Affiliate Fellows shall pay Fellowship dues and shall enjoy the privileges of the Scientific Assembly without the right to vote or hold office."

8. Amend Division Two, Chapter V, so that the second category shall read: "(2) Active or Associate Members;"

9. Amend Division Two, Chapter VII, Section 3, first sentence to read: "The officers of each section shall be a chairman, a vice chairman, a secretary, the delegate, a representative to the Scientific Exhibit and such other officers as the section . . . ."

10. Amend Division Two, Chapter VII, Section 5, by adding the following new paragraph:

"(D) Section Representatives to the Scientific Exhibit.—The section representatives shall assist the Committee on Scientific Exhibit of the Board of Trustees in obtaining outstanding scientific exhibits and advise the Committee on the selection of material submitted and on all other matters pertaining to exhibits in their respective specialties."

11. Amend Division Three, Chapter IX, Section 1, (A) so that this paragraph shall read: "In order to be eligible for election to membership in the House of Delegates, a physician must have been a dues paying active member of the American Medical Association and a Member Fellow of the Scientific Assembly for at least the two years immediately preceding the session of the House at which he is to serve. Service Fellows need not be dues paying active members."

12. Amend Division Three, Chapter IX, Section 1 (B), second paragraph to read: "Secretaries of constituent associations, secretaries of sections of the Scientific Assembly, the Surgeons General of the United States Army, the United States Navy, the United States Air Force and the United States Public Health Service and the Chief Medical Director of the Veterans Administration shall certify delegates and alternates to the Secretary of the American Medical Association."

13. Amend Division Three, Chapter IX, Section 1 (C) to read: "The opportionment of delegates from each constituent association shall be one delegate for each thousand (1,000) or fraction thereof, dues paying active members of the American Medical Association as recorded in the office of the Secretary of the American Medical Association on December 1 of each year."

14. Amend Division Three, Chapter X, Section 4 as follows: "Sec. 4. Standing Committees.—(A) The following are the standing committees of the House:"

and add as a final category,

"(5) Committee on Constitution and By-Laws."

and further amend Chapter X, Section 4 by adding the words "and Committees" after the words "The Councils" in the first sentence of paragrph (C), and by adding the words, "and Committee" after the words, "Each Council" in the first sentence of paragraphs (D) and (E);

and amend the same section, Paragraph (F) to read: "(F) Each Council and Committee shall have authority to appoint subcommittees subject to the approval of the Board of Trustees for any purpose within the functions of the Council or Committee."

and further amend the same section by adding the words, "and Committees" at the end of Paragraph (G) so that that paragraph will read: "(G) Headquarters.—The Association headquarters shall be the headquarters of all Councils and Committees."

and further amend the same Section by adding the words, "and Committee" after the words "Each Council" in the first sentence of paragraph (H).

15. Amend Division Three, Chapter X, Section 5, (D) (4) to read: "(4) Medical Education and Hospitals, to which shall be referred all matters relating to medical education and hospitals."

16. Amend Division Three, Chapter XII, Section 6, by adding final paragraph "(I) Be an ex officio member of all standing committees of the House of Delegates and the Board of Trustees without the right to vote."

17. Amend Division Three, Chapter XIII, Section 4, (C) to read as follows: "(C) Appoint an editor or editors for all or any of the Association's publications. The Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION shall be an ex officio member of all standing committees of the House of Delegates and the Board of Trustees without the right to vote."

and further amend the same section by adding a new paragraph "(E) Appoint an Assistant Secretary. He shall be an ex officio member of all standing committees of the House of Delegates and the Board of Trustees without the right to vote."

This amendment necessitates the relettering of the remaining paragraphs of Section 4, so that former paragraphs (E), (F) and (G) will become paragraphs (F), (G) and (H) respectively.

Respectfully submitted,

JOSEPH D. MCCARTHY, Chairman.
LOUIS A. BUIE.
EDWIN S. HAMILTON.
STANLEY H. OSBORN.
BRITTON E. PICKETT.
FLOYD S. WINSLOW.
and ex officio
FRANK F. BORZELL.
ERNEST B. HOWARD.
GEORGE F. LULL.
JAMES R. REULING.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO CONSTITUTION AND BY-LAWS

This report was referred to the Reference Committee on Amendments to the Constitution and By-Laws, which presented the following report which was adopted and the By-Laws amended as indicated while the proposed amendments to the Constitution will lie over until the annual session in June, 1951:

1. Your committee approves the resolution of the Interim Committee on Constitution and By-Laws and recommends its adoption.

2. The proposed amendments offered by the Interim Committee on Constitution and By-Laws are recommended for adoption with the following amendment: That in the sentence reading "The general officers, the past Presidents of the Association, the General Manager, the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the chairmen of the several Councils" etc., the word "Councils" shall be changed to "standing committees."

Supplementary Report of Board of Trustees on Resolution on Council on Federal Medical Services

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following report, which was referred to the Reference Committee on Insurance and Medical Service:

During the June 1950 Session of the House of Delegates Dr. James C. Sargent introduced a resolution entitled, "Resolution on Council on Federal Medical Services." On recommendation of the reference committee, the resolution was referred to the Board of Trustees for further study. After further study the Board of Trustees referred the Resolution to the Council on Medical Service with the suggestion that the Council's Committee on Medical Care of Veterans "be expanded to include federal personnel."

The Council is in agreement with the suggestion of the Board of Trustees and recommends to the House of Delegates that the name of the Council's Committee on Medical Care of Veterans be changed to Committee on Federal Medical Services. On approval of this recommendation, the Council will enlarge the personnel of this Committee to meet the requirements of the specific functions enumerated in the resolution; that is, (*a*) advising the Board of Trustees on all aspects of the several forms of federally supplied medical care either now or to be established; (*b*) serving the Board of Trustees and the Association in conference with and in representations to both nongovernmental and governmental agencies interested in the several forms of federally supplied medical care; and (*c*) advising the House of Delegates at each of its regular and special sessions on any policy or change in policy of the Association relating to the several forms of federally supplied medical care which may require its consideration and action.

In order to carry out these functions, the Council recognizes the necessity of the fullest possible cooperation between this Committee, the Council on National Emergency Medical Service, the Committee on Chronic Diseases, the Washington Office and other councils, bureaus, and committees within the Association.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

The reference committee presented the following report which was adopted:

In the Supplementary Report of the Council, the section on Federal Medical Services, the committee recommends the approval of lodging this function in the present Council Committee on Medical Care of Veterans and the change of the name to the Committee on Federal Medical Services; it recommends that the three paragraphs on the functions of the Committee, *a*, *b*, and *c*, be corrected accordingly so that in *a* the words "Council on Medical Service" will be substituted for the words "Board of Trustees," in *b*, the words "Council on Medical Service" will be substituted for the words "Board of Trustees and the Association," and in *c*, the words "Council on Medical Service" be substituted for the words "House of Delegates." These corrections are made in line with the mechanical changes suggested.

Report of Council on Medical Education and Hospitals

The Report of the Council on Medical Education and Hospitals (See THE JOURNAL, Oct. 21, 1950, pages 662-666) was referred to the Reference Committee on Medical Education, which reported as follows and the report was adopted:

Your reference committee has considered the report of the Council on Medical Education and Hospitals. Your committee commends the Council for the splendid service which it has rendered and for the clear and concise report which it has made of its many activities in the past year. It is recommended that all members of the House of Delegates read the report of the Council on Medical Education and Hospitals. Your committee expresses the hope that the Council on Medical Education and Hospitals will continue its consideration of the critical problem of medical education in the current emergency as well as the Survey of Medical Education. Your committee has considered the report of the Council on the financial support of medical schools.

Your committee recommends the approval of the report of the Council on Medical Education and Hospitals.

Report and Supplementary Report of Council on Scientific Assembly

The Speaker referred the Report of the Council on Scientific Assembly (See THE JOURNAL, Oct. 21, 1950, page 667) and its following supplementary report to the Reference Committee on Sections and Section Work:

To the Members of the House of Delegates of the American Medical Association:

The Council met on November 17 in Chicago and on December 4 in Cleveland. The Conference of Section Secretaries also met with the Council in Chicago on November 17.

SECTION ON ALLERGY

On November 17 a request to recommend the establishment of a Section on Allergy was presented to the Council by Dr. Harry L. Huber of Chicago. After due consideration, the Council voted to recommend to the House of Delegates that a Section on Allergy be not established at this time. At the same meeting, the Council voted to grant a Session on Allergy in the Section on Miscellaneous Topics at the 1951 Atlantic City Annual Session.

1951 ATLANTIC CITY ANNUAL SESSION

No change in the general form of the Scientific Assembly is anticipated for the 1951 Annual Session. The section secretaries have their programs well advanced and the Council has already filled most of the places on the list of speakers for the General Scientific meetings.

1951 HOUSTON CLINICAL SESSION

The Council notes with pleasure the appointment by the Board of Trustees of Dr. James T. Billups, of Houston, Texas, as Chairman of the Local Committee on Arrangements for the Houston Clinical Session, to be held Dec. 4-7, 1951. Conferences with Dr. Billups have already been held and the Council plans to meet in Houston in March of next year.

The Southern Medical Association meets in Dallas a few weeks prior to the Clinical Session of the American Medical Association in Houston. Both associations may suffer from the close juxtaposition of these two meetings. There is bound to be considerable duplication in audience and in speakers who participate in the clinical lectures or presentations. This also applies to exhibitors, both commercial and scientific.

In view of a contract already signed with the Houston authorities, the Council will do its best to provide a suitable program, depending largely, as usual, on the Local Committee on Arrangements. The addition of Dr. Samuel P. Newman of Denver to the membership of the Council to fill out the unexpired term of Dr. Larson, now a member of the Board of Trustees, should be helpful to the Houston Committee, as he was responsible for the splendid program arranged for the Denver Clinical Session in 1950, which had to be suddenly given up when the meeting was transferred to Cleveland.

1950 CLEVELAND CLINICAL SESSION

The Council desires to express its appreciation at this time to the Local Committee on Arrangements for the 1950 Cleveland Clinical Session. Headed by an able chairman, Dr. Fay A. LeFevre, all members of the committee are to be congratulated on the exhibits, the television and clinical programs of high quality presented at this Clinical Session.

REPORT OF REFERENCE COMMITTEE ON SECTIONS AND SECTION WORK

The reference committee presented the following report, which was adopted:

Your Reference Committee on Sections and Section Work wishes to make the following report:

1. Your reference committee had referred to it the report of the Council on Scientific Assembly together with a supplementary report, in which the Council had made certain specific recommendations:

A. Section on Military Medicine: After duly considering the request made by the House of Delegates at the last Annual Session in San Francisco that a Section on Military Medicine be established, the Council on Scientific Assembly has recommended the establishment of a new Section on Military Medicine. Your reference committee has given this matter serious thought and is in full accord with this action of the Council, particularly now that the importance of military medicine in the national defense in our present emergency has taken on added significance. Your reference committee therefore recommends to the House of Delegates the establishment of a new Section on Military Medicine.

B. Change in name of Section on Preventive and Industrial Medicine and Public Health: Your reference committee is in agreement with the recommendation of the Council that the name of the Section on Preventive and Industrial Medicine and Public Health not be changed.

C. Section on Medicine in Industry: Your reference committee approves the recommendation of the Council that a Section on Medicine in Industry not be established.

2. Resolution on Change in Name of Section on Nervous and Mental Diseases: Your reference committee, after due consideration, recommends that this resolution be disapproved.

3. Your reference committee has reviewed the work of the Council on Scientific Assembly and wishes to express appreciation for its splendid accomplishments.

Report and Supplementary Report of Council on Medical Service

The Speaker referred the Report of the Council on Medical Service (See THE JOURNAL, Oct. 21, 1950, pages 668-670) and its mimeographed supplementary report to the Reference Committee on Insurance and Medical Service, which presented the following report which was adopted:

The printed portion of the report of the Council on Medical Service deals chiefly with Committees of the Council, Indigent Medical Care, Grievance Committees, the Physicians Placement Service and the Distribution of Printed Material. The committee feels the Council has planned well and accomplished much within the limits of its budget and staff. The committee recommends the approval of the printed report.

In the supplementary report of the Council, the Section on Federal Medical Services, the Committee recommends the approval of lodging this function in the present Council Committee on Medical Care of Veterans and the change of the name to the Committee on Federal Medical Services; it recommends that the three paragraphs on the functions of the Committee *a*, *b*, and *c*, be corrected accordingly so that in *a* the words "Council on Medical Service" will be substituted for the words "Board of Trustees," in *b*, the words "Council on Medical Service" will be substituted for the words "Board of Trustees and the Association," and in *c*, the words "Council on Medical Service" be substituted for the words "House of Delegates." These corrections are made in line with the mechanical changes suggested.

The recommendations regarding possible policy concerning temporary disability compensation insurance were reviewed and many witnesses with varying viewpoints were heard. Some information on the subject was contained in the Council's report and witnesses presented a number of exhibits based on the subject. It was ascertained that a complete digest of the information that the Council's staff has assembled has not as yet been made and until this has been done it is doubtful whether the House of Delegates will be in a position to formulate a complete policy respecting the best methods of providing such coverage. It appears that the Council will be able to supply this to every member of the House of Delegates early in May and the committee recommends that it do so. In the interim, the Council is in a position to supply the information it has to any state societies needing it.

It is recommended pending the establishment of a policy on the subject of temporary disability compensation insurance that the following minimum safeguards ought to be observed:

1. In the case of possible legislative enactment the prevention of abuse and extension of the program into allied fields;
2. Limitation of benefits to cash indemnity;
3. Limitation of physician's duty to reports on diagnosis, prognosis and ability to work.
4. Provision of medical supervision or review for maintenance of suitable standards of reporting.

On the subject of Voluntary Health Insurance, the House should note the commendable progress outlined in the report.

The House should reiterate at this time the necessity for the expansion of benefits offered under voluntary service plans as rapidly as will be consistent with sound insurance practice. Among those attention is drawn not only to catastrophic coverage, and home and office service coverage, but particularly the extension of periods of grace occasioned by temporary unemployment.

The conferences on the provision of nursing services are most praiseworthy and approval of that portion of the report is recommended with the deletion of the paragraph which follows the listing of eight problems to be considered, the paragraph which makes reference to commercial carriers.

The recommendations with respect to relations with lay sponsored voluntary health plans outlining the mechanism and mode of accreditation are well thought out and the committee recommends their approval.

The committee desires to make the following general observations regarding the functions of the Council on Medical Service with recommendations to the House:

The Council on Medical Service has within its sphere of activity some of the principal responsibilities of the American Medical Association relating to the positive program of the Association in making studies and devising means for getting more and better medical care to the American people. With particular approval the committee has heard the statement from the Chairman of the Board that the support of the Council's activities is to be increased. Hitherto the Council has conducted its activities with a very small staff and very limited appropriations. The committee believes that the staff has been insufficient even to make an expert analysis of the data the Council possesses. The committee envisages in the immediate future the necessity for proceeding on a greatly expanded program of studies and the active promotion by the American Medical Association in all needful areas of every sound means of supplying medical service. Among many needed projects might be mentioned pilot studies in the provision of care, in the further discovery of local gaps in medical care, and the establishment of a revolving fund to be utilized in the physician placement service. Furthermore, war conditions are likely to produce dislocations of medical service which will furnish special and urgent problems for the Council. A greatly augmented staff, strengthened in every particular, is requisite. The members of the Association have demonstrated that they can mobilize funds for the negative aspects of our program and it is now shown that they are just as willing to accumulate large amounts for the positive phase. The House might well indicate to the Board its entire support for the greater extension of the functions of this Council for the purpose mentioned and the committee so recommends.

Resolution on Facilities of the American Medical Association Available in Serving the Nation

Dr. R. B. Robins, Arkansas, presented the following resolution which was adopted:

WHEREAS, Our nation and the United Nations are now facing the most fateful decisions in their history in protecting and preserving the liberties and freedoms for which they were created; and

WHEREAS, The undeclared war now being waged against the United States and the United Nations in Korea is growing more serious hourly; and

WHEREAS, Our nation and the other free nations of the world require at this hour and in the ominous days and weeks ahead the fullest support of our united peoples; and

WHEREAS, This situation imposes on the medical profession, both in the care of our fighting men and of our civilian populations, the heaviest of responsibilities; and

WHEREAS, The American Medical Association, acting through its House of Delegates and representing its 148,000 members, desires to discharge fully these responsibilities in serving the men of the armed forces and the civilian population; therefore be it

Resolved, By the House of Delegates of the American Medical Association that the President of the United States, as Commander-in-Chief of our armed forces, be informed that the facilities of the American Medical Association will be used in all ways possible and necessary in serving the nation and in providing the best of medical care to soldier and civilian alike.

Resolution on Absentee Ballot

Dr. James Z. Appel, Pennsylvania, presented the following resolution:

WHEREAS, It is the duty of every citizen of the United States to exercise his or her privilege of the ballot; and

WHEREAS, There is a great variation in the laws of the states regarding absentee ballots, some states having no absentee ballots, others having such ballots but regulations being such that make it extremely difficult to exercise a vote by absentee ballot; and

WHEREAS, During election week of 1950 several state, regional and national medical organizations held sessions thus preventing their membership from exercising their privilege of the ballot; therefore be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees to memorialize all medical organizations regarding the error of scheduling state, national and regional medical meetings at times of election.

Report of Reference Committee on Miscellaneous Business

The Reference Committee on Miscellaneous Business, to which this resolution was referred, submitted the following report, which was adopted:

Your Reference Committee on Miscellaneous Business heartily agrees with the intent of the resolution and feels that it is inconsistent and unthoughtful for medical organizations to urge doctors to get out and vote and then arrange meetings which interfere with this privilege. Your committee requests that editorial comment be made on this problem in THE JOURNAL of the American Medical Association in order that the purpose of this resolution may be implemented. It, therefore, recommends the adoption of this resolution.

Resolutions on Hospital Standardization Program

Dr. James Z. Appel, Pennsylvania, presented the following resolutions:

WHEREAS, The House of Delegates of the American Hospital Association at its recent meeting at Atlantic City authorized the trustees of the American Hospital Association to establish a Hospital Standardization Program; and

WHEREAS, The American College of Surgeons did express a desire to withdraw from the hospital standardization field; now, therefore, be it

Resolved, That the House of Delegates of the American Medical Association expresses its disapproval of (1) the plans of the American Hospital Association regarding the existing hospital standardization program of the American College of Surgeons and (2) the plan of the American Hospital Association to establish a hospital standardization program either as an independent enterprise or as a transfer to the hospital association; and be it further

Resolved, That any new hospital standardization program be a joint venture whereby the medical components of the plan would set medical practice standards and the administrative components would set non-medical standards, each group having representation on the board which will be the final authority.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION

The Reference Committee on Medical Education, to which the resolutions were referred, presented the following report, which was adopted:

Your committee gave serious consideration to the resolutions presented by Dr. James Z. Appel on the subject of hospital standardization. Your committee agrees with the principles expressed in the resolution but because of the study being given to this matter at the present time, your committee feels that no action should be taken.

Resolution on Mail Deliveries

Dr. James Z. Appel, Pennsylvania, presented the following resolution:

WHEREAS, The present restricted schedule of first class mail deliveries and collections has resulted in serious inconvenience to the public; and

WHEREAS, This situation has been a particular hardship to physicians in the performance of their important professional duties; therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record as strongly urging the prompt restoration of previous first class delivery and collection schedules in the Post Office Department.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

The Reference Committee on Miscellaneous Business presented the following report, which was adopted:

Your Committee on Miscellaneous Business is in sympathy with the intent of the resolution but feels that this is not pertinent to the affairs of the House of Delegates of the American Medical Association. It, therefore, recommends that this resolution not be adopted.

Resolution on Absence of Dr. Roy Fouts

Dr. James Z. Appel, Pennsylvania, submitted the following resolution, which was adopted:

WHEREAS, Dr. Roy Fouts, a member of this House of Delegates for 28 years, during which time he most ably served as Vice Speaker and Speaker of the House of Delegates, is unable to attend this session due to illness; be it

Resolved, That the House of Delegates express its sincere hope for his speedy recovery and inform him that his absence from this session has created a definite loss to the American Medical Association.

Resolution on Proposed Amendment to Principles of Medical Ethics

Dr. Allen T. Stewart, Texas, presented the following resolution proposing an amendment to the Principles of Medical Ethics:

WHEREAS, On June 6, 1949, at the recommendation of the Judicial Council, the House of Delegates of the American Medical Association approved a revision of the Principles of Medical Ethics; and

WHEREAS, In Section 6, Chapter I of these revised Principles of Medical Ethics there are two sentences which read "An ethical physician does not engage in barter or trade in the appliances, devices or remedies prescribed for patients, but limits the sources of his professional income to professional services rendered the patient. He should receive his remuneration for professional services rendered only in the amount of his fee specifically announced to his patient at the time the service is rendered or in the form of a subsequent statement, and he should not accept additional compensation secretly or openly, directly or indirectly, from any other source"; and

WHEREAS, An interpretation of these sentences by the Judicial Council classifies as unethical many accepted practices of physicians, necessary for the proper care and protection of their patients, particularly in rural areas and in smaller communities; and

WHEREAS, A code of ethics should be so worded as to be reasonable and susceptible of universal application to all members of the society, irrespective of the size or location of their community; and

WHEREAS, The enforcement of this provision of the Principles of Medical Ethics would be a restrictive infringement on the freedom of physicians to indulge in many legitimate businesses related to their profession; and

WHEREAS, The Federal Government is using these sentences as an entering wedge to restrict and legally control the independent and nonprofessional business activities of the members of the medical profession thereby depriving them of their constitutional rights to private enterprise; and

WHEREAS, The disregarding of this provision of the Principles of Medical Ethics would provide opportunities for charges of hypocrisy, evasion and subterfuge against the medical profession, as it is well known that many reputable physicians have interests or stocks in enterprises connected with the medical profession, which ownerships and interests are considered entirely proper by the profession and community as a whole, but which would be outlawed and declared unethical by the application of the provisions of these sentences in Section 6, Chapter I; and

WHEREAS, It has always been the policy of the American Medical Association, acting through its House of Delegates, to be unalterably opposed to rebating in any form; therefore be it

Resolved, That the House of Delegates of the American Medical Association delete the fourth and fifth sentences of Section 6, Chapter I, Principles of Medical Ethics, leaving the section to read: "An ethical physician will not receive remuneration from patents on or the sale of surgical instruments, appliances and medicines, nor profit from a copyright on methods or procedures. The receipt of remuneration from patents or copyrights tempts the owners thereof to retard or inhibit research or to restrict the benefits derivable therefrom to patients, the public or the medical profession. The acceptance of rebates on prescriptions or appliances, or of commissions from attendants who aid in the care of patients is unethical. The prescription or dispensing by a physician of secret medicines or other secret remedial agents, of which he does not know the composition, or the manufacture or promotion of their use is unethical."

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

The Reference Committee on Miscellaneous Business submitted the following report, which was adopted:

1. Resolution on "Amendment of Principles of Medical Ethics, Sec. 6, Ch. I.": Your Reference Committee on Miscellaneous Business after a full hearing and much discussion before the committee of the various problems of medical practice pertinent to this resolution and realizing the difficulty of immediate solution, recommends that this resolution be referred to the Judicial Council with the suggestion by the committee that in Chapter I, Section 6, the fourth sentence, the words, "for financial gain" be inserted after the words, "for patients," and that the remainder of the paragraph be deleted. Because of the suggested reference of this resolution to the Judicial Council with the foregoing suggestions by the committee it recommends that the resolution as presented be not approved and that the suggestions be referred to the Judicial Council.

Resolutions on Establishment of Special Committee on the Problems of Alcoholism

Dr. H. H. Bauckus, New York, presented the following resolutions:

WHEREAS, At the Ninety-Ninth Annual Session of the House of Delegates of the American Medical Association, a resolution was introduced by Dr. Joseph P. Henry of New York on the Establishment of a Committee on the Problems of Alcoholism, as described on page 40 of the Proceedings of that Session; and

WHEREAS, The resolution was referred to the Reference Committee on Miscellaneous Business; and

WHEREAS, The said reference committee reported back to the House of Delegates, as shown on page 55 of the Proceedings, paragraph 6, that the subject should be studied by "the already established Commission on Chronic Illness"; and

WHEREAS, The said commission is not the proper body to whom this subject should be delegated because it is not a committee of the American Medical Association; now therefore be it

Resolved, By the House of Delegates of the American Medical Association, that the reference to the Commission on Chronic Illness be, and it hereby is, rescinded; and be it further

Resolved, That the same resolution presented by Dr. Joseph P. Henry of New York at the Ninety-Ninth Annual Session of the House of Delegates be reenacted by this body, as follows:

"*Resolved*, That the American Medical Association establish at the earliest feasible date a special committee on the problems of alcoholism, to formulate and put into effect, on a nationwide basis, a comprehensive and effective program for medicine's aggressive participation in the work of solving the problems of alcoholism, such program to include a vigorous recommendation to each constituent state and component county medical society that it establish and support actively a special committee patterned after the special committee on the problems of alcoholism of the Medical Society of the State of New York."

Report of Reference Committee on Hygiene and Public Health

These resolutions were referred to the Reference Committee on Hygiene and Public Health, which submitted the following report and its report was adopted:

Your Reference Committee on Hygiene and Public Health agrees with the intent of these resolutions. It believes reference of the original resolution presented at San Francisco for implementation to the Commission on Chronic Illness was unwise. Inasmuch as the establishment of new special committees is considered undesirable, and after consultation with the sponsors of the resolution and the chairman of the Committee on Chronic Diseases, your reference committee recommends that the problems of alcoholism be referred to the Committee on Chronic Diseases for study and implementation.

Resolution on Federal Aid to Medical Education

Dr. Laurence S. Nelson Sr., Kansas, presented the following resolution:

Whereas, Federal support of any program whatever has inevitably resulted in the regulation and increasing control over that program; and

Whereas, Federal funds represent taxes raised at state and local levels, only a portion of which are ultimately returned to the project at local levels; and

Whereas, Examples exist of successful state and local support of medical schools as in Kansas, rendering further aid at federal levels unnecessary; and

Whereas, The Kansas effort was accomplished through the active participation of the people of Kansas, acting on their own initiative to solve their problems; and

Whereas, This can be accomplished elsewhere through the cooperative effort of the medical school, the medical profession and the people of the state; and

Whereas, Federal grants to research must be considered entirely apart from federal aid to medical education since the results of these researches serve a nationwide and even international effect on medical care and health problems; therefore be it

Resolved, That opposition to federal legislation for the appropriation of financial aid to medical schools be vigorously continued and that increasing effort be expended toward the local solution of financial problems confronting the schools of medicine in this nation.

Report of Reference Committee on Medical Education

The Reference Committee on Medical Education, to which the resolution was referred submitted the following report which was adopted:

Your reference committee considered the resolution presented by the Kansas Medical Society pertaining to federal aid for medical education. Your committee agrees with the principles expressed in this resolution that the financing of medical education should be done on a local level where possible but since this matter has previously been covered in "A Joint Statement by the Board of Trustees and the Council on Medical Education and Hospitals of the American Medical Association on Senate Bill 1453 and H. R. 5940," your committee offers the following substitute resolution:

Resolved, That while some medical schools are finding it difficult to secure sufficient funds to maintain their standards of training, the American Medical Association would prefer to see medical schools receive the support they require from private philanthropy or local public funds. Unless and until such support is provided, it may be necessary for some medical schools to accept financial aid from the federal government. Such aid, however, must carry with it the assurance of freedom from political control and regulation.

Resolution on Inspection of Government Agencies and the Use of Medical Personnel

Dr. E. F. Hoffman, California, presented the following resolution:

Whereas, Because of the international situation and because the administration in its drive to socialize medicine is no longer trustworthy, it has become necessary for the medical profession, in the interest of the public welfare, to inspect and control the use of medical personnel by the military and other government agencies; and

Whereas, The medical profession through the American Medical Association is responsible for the medical care of military and civilian population; and

Whereas, In such matters as medical legislation and relations with military and government agencies, the medical profession has demonstrated its unselfish patriotism; and

Whereas, In the past the military has been reckless in the call-up of doctors and wasteful in their use; and

Whereas, During peacetime, immediately following the last war, physicians were ordered to duty by the military to serve in nonmilitary government agencies, such as Veterans Administration, Public Health and Indian Service; and

Whereas, This dangerous policy of conscription of doctors for civilian purposes in peacetime was one of the direct causes of the present doctor draft law; and

Whereas, There is the constant tendency for military hospitals to expand and take on civilian practice; and

Whereas, The precedent of inspection of military and other government hospitals has already been established by civilian specialty boards for purposes of certification; therefore be it

Resolved, That the American Medical Association establish an advisory committee with the express function of inspecting all government agencies, military and civilian, here and abroad, to see that drafted medical personnel are not wasted and are not used to staff civilian government agencies in competition with private physicians and hospitals.

Report of Reference Committee on Emergency Medical Service

The Reference Committee on Emergency Medical Service, to which the resolution was referred, offered the following report which was adopted:

The committee is in agreement with the intent of this resolution that every possible means be taken to avoid waste of medical personnel in the armed forces. At the committee hearing its consulting members, representing the various branches of the armed forces, discussed this question very fully. As a result of these discussions, your committee now finds that this problem has been receiving their serious consideration and is being solved as promptly as possible. Furthermore, an Office of Medical Services, headed by a civilian physician, was established in the Office of the Secretary of Defense some time ago. Furthermore, the Council on National Emergency Medical Service has reported that an Advisory Committee, composed of outstanding members of the civilian health professions and including two members of its Council, has recently been appointed to advise the Chairman of the National Security Resources Board on the proper allocation of the health resources of the nation, including the medical profession, in the event of full scale mobilization.

In view, therefore, of all the necessary steps now being taken to conserve our medical personnel in both the armed forces and in civilian life, your committee feels that any action by the House of Delegates on this resolution is unnecessary.

Resolutions on Competition with Practice of Medicine

Dr. George M. Fister, Utah, presented the following resolutions:

Whereas, There is a well recognized growing tendency on the part of administrators of many hospitals to encourage private ambulatory patients to enter the radiological, pathological and physical therapy departments of their institutions for the purpose of examination and treatment; and

Whereas, This practice tends to put such hospitals into competition with physicians who are engaged in the private practice of their specialties; and

Whereas, The House of Delegates of the Utah State Medical Association is on record as disapproving the proselyting of private ambulatory patients by hospitals for the purpose of making studies or giving treatments in various departments of such hospitals; therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record as approving in principle of this action of the Utah State Medical Association; and be it further

Resolved, That the House of Delegates of the American Medical Association instruct the proper councils of that body to take the necessary action to carry out the intent of these resolutions.

Report of Reference Committee on Medical Education

The following report which was adopted, was presented by the Reference Committee on Medical Education:

After consideration of the resolutions presented by the Utah State Medical Association regarding competition with the practice of medicine, your committee was in general agreement with the principles set forth in these resolutions but since policy has already been established by the adoption of the Hess committee report, the committee believes that no action is necessary and directs attention to the report of the Judicial Council which outlines the mechanism by which the problem can be solved.

Resolutions on Fund for Aid to Medical Schools

Dr. Edward H. McLean, Oregon, submitted the following resolutions:

WHEREAS, Medical graduates, even though they have paid full tuition, contribute only 25 to 50 per cent of the cost of their education and therefore owe a moral debt to their medical school; and

WHEREAS, Many medical graduates recognize this moral debt and would be glad to discharge it in part after they become well established in practice; and

WHEREAS, Federal subsidy of medical education has been vigorously sought by the social planners as one phase in their over-all promotion of the socialization of medicine; and

WHEREAS, Federal subsidy inevitably involves political control, which would lead to a deterioration in teaching standards; and

WHEREAS, The National Fund for Medical Education Inc. has recently been organized to support medical education in the United States on a voluntary basis; and

WHEREAS, The American Medical Association can play a useful role in the voluntary movement for the support of American medical education by establishing means by which its members can discharge the moral debt arising from their professional education; therefore be it

Resolved, That the House of Delegates of the American Medical Association recognizes the moral debt of the medical profession to the medical schools; and be it further

Resolved, That the House of Delegates instruct the Board of Trustees to study the feasibility of establishing a fund for aid to medical schools to be created by voluntary subscriptions or by allotments from annual dues, said fund to be administered by the Board of Trustees or contributed to the National Fund for Medical Education Inc.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION

The Reference Committee on Medical Education, to which the resolutions were referred, presented the following report, which was adopted:

Your reference committee has given careful consideration to the resolutions presented by the Oregon State Medical Society with regard to the feasibility of establishing a fund for aid to medical schools to be created by voluntary subscriptions or by allotments from annual dues and recommends their adoption.

Resolution on Amendment to By-Laws

Dr. C. L. Farrell, Rhode Island, submitted the following resolution recommending an amendment to Division Three Chapter IX, Section 1, (B) and (C):

WHEREAS, The scope of the work of the individual members of the House of Delegates of the American Medical Association has increased greatly in recent years, thereby making satisfactory representation of a constituent association by a single delegate almost impossible; and

WHEREAS, There are twenty state and territorial associations faced with this serious problem of having but a single representative to inform them of the many actions of the House and its reference committees; and

WHEREAS, It is vital today that each state association be adequately represented in the formation of national policies of the American Medical Association, and in turn be completely informed of the transaction of all business of the Association; therefore be it

Resolved, That the Rhode Island Medical Society, by action of its House of Delegates in meeting on September 27, 1950, request the House of Delegates of the American Medical Association to amend Chapter IX, Sec. 1 (B) and (C) of its By-Laws to read as follows:

Section 1.

(B) Term.—Delegates and alternates from constituent associations, sections, the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service and the Veterans Administration shall be elected or appointed, as the case may be, for two year terms, and shall assume office on January 1 of the year succeeding their election or appointment except that incumbent delegates on the date of the adoption of these By-Laws shall serve until their successors are elected and assume office. Constituent associations entitled to more than two representatives shall elect them so that one half the number, as near as may be, are elected each year.

Secretaries of constituent associations, secretaries of sections of the Scientific Assembly, the Surgeons General of the United States Army, the United States Navy and the United States Public Health Service and the Chief Medical Director of the Veterans Administration shall certify delegates and alternates to the Secretary of the American Medical Association.

(C) Apportionment.—The apportionment of delegates from each constituent state association shall be one delegate for each thousand (1,000) active members or fraction thereof where the membership exceeds one thousand, and shall be two delegates for each state with one thousand (1,000) or less active members, as recorded in the office of the Secretary of the American Medical Association on December 1 of each year. Such apportionment shall take effect the ensuing January 1 and shall remain effective for one year thereafter. In December of each year the Secretary of the American Medical Association shall notify each constituent association of the number of delegates to which it is entitled during the next succeeding year.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

The Reference Committee on Amendments to the Constitution and By-Laws, to which the resolution was referred offered the following report, which was adopted:

A resolution received by your committee came from the Rhode Island Medical Society and dealt with the number of delegates in those constituent associations which have 1,000 or fewer members. Your committee realizes the difficulties which are encountered in those constituent associations which are limited to one delegate in the House of Delegates. On the other hand, it also realizes that the adoption of such an amendment would give the physicians in these small associations a much larger voice proportionately in the House of Delegates than would be possessed by the larger delegations. Your committee, after full hearings and discussion, recommends that this resolution be not adopted, but that the problem of the difficulties of the small constituent associations be referred to the permanent Committee on Amendments to the Constitution and By-Laws for study. Your committee would also request that the permanent Committee on Constitution and By-Laws consider the problem of the single representative from a constituent association who becomes ill or who is called home after being seated in the House of Delegates. See By-Laws, Division Three, Chapter IX, Section 1 (E).

In the hearings held before the committee and in the deliberation itself, it became evident that there is a diversity of opinion as to just what is meant by the terms "ex officio," "ex officio without power to vote" and "executive session." Your committee would recommend that this matter be referred to the permanent Committee on Constitution and By-Laws for interpretation and clarification, with instructions to make a report on this matter at the next session of the House of Delegates.

Proposed Amendment to Constitution

Dr. James P. Wall, Mississippi, presented the following proposed Amendment to the Constitution, Article 6, Section 2:

Amend Article 6, Section 2 so that beginning after the word "service" add: "and the Past Presidents of the American Medical Association" and in the last sentence the following phrase should be deleted: "the Past Presidents." So amended, Article 6 Section 2 would read:

"The House of Delegates is composed of delegates duly elected by the constituent associations and by the sections of the Scientific Assembly and of delegates from the Medical Departments of the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service and the Veterans Administration, appointed by the Surgeon General or Chief Medical Director, as the case may be, of the respective service, and the Past Presidents of the American Medical Association. The general officers, the General Manager, the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the chairmen of the several Councils shall be ex officio members of the House of Delegates without the right to vote."

Proposed Amendment to the By-Laws

Dr. Wall also presented the following proposed amendment to the By-Laws, Division Three, Chapter IX, Section 1 (B):

Amend Division Three, Chapter IX, Section 1 (B), beginning after the sentence ending "are elected each year", add: Past Presidents of the American Medical Association shall serve for a period of five years immediately following their tenure of the Presidency of the American Medical Association.

So amended, that portion of the By-Laws would read as follows: The delegates and alternates from constituent associations, sections, the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service and the Veterans Administration shall be elected or appointed, as the case may be, for two year terms and shall assume office on January 1 of the year succeeding their election or appointment except that incumbent delegates on the date of the adoption of these By-Laws shall serve until their successors are elected and assume office. Constituent associations entitled to more than one representative shall elect them so that one half the number, as near as may be, are elected each year. Past Presidents of the American Medical

Association shall serve for a period of five years immediately following their tenure of the Presidency of the American Medical Association.

Report of Reference Committee on Amendments to the Constitution and By-Laws

These proposed amendments to the Constitution and the By-Laws were referred to the Reference Committee on Amendments to the Constitution and By-Laws, which reported as follows and the report was adopted:

Your committee received proposed amendments from Dr. James P. Wall, Mississippi, relative to past presidents serving in the House of Delegates. Your committee spent considerable time in hearing arguments for and against these amendments and in its own deliberations. Your committee is of the unanimous opinion that the best interests of the Association would not be served by the adoption of these amendments. Your committee therefore recommends that the proposed amendments to the Constitution and By-Laws as presented by Dr. Wall be not adopted.

Resolutions on Medical and Hospital Care of Veterans with Nonservice Connected Disabilities

Dr. Robert B. Wood, Tennessee, presented the following resolutions, which were supported by Drs. Wyman D. Barrett, Michigan, S. E. Gavin, Wisconsin, and James Q. Graves, Louisiana:

Whereas, The present program of medical and hospital benefits for veterans with nonservice connected disabilities is of unequal benefit to veterans and not universally available to all eligible veterans because of the presently limited facilities; and

Whereas, The program of expanding the number and size of veterans' hospitals to the point of making these benefits reasonably available and accessible to all veterans, especially in cases of acute illness or injury, would require the construction and administration of a very large number of veterans' hospitals; and

Whereas, The principle of insurance has been proved by experience to be applicable to the financing of the cost of medical and hospital care; now, therefore, be it

Resolved, By the House of Delegates of the American Medical Association that we recommend to the Congress of the United States and to veterans the enactment of legislation which would have the following effect: The repeal of Section 706, Chapter 12, Title 38, of the World War Veterans' Act (Reference, U. S. Code, 1946 Edition) and the enactment of a new law with provisions which require the Administrator of Veterans' Affairs to make available to veterans who are unable to pay for their hospital and medical services, hospital and medical service benefits in the form of a hospital and medical service insurance contract, and that the Administrator of Veterans' Affairs be authorized to use his discretion in providing such insurance coverage, either (1) by furnishing each eligible veteran an amount of money sufficient to cover the premium cost of such an insurance contract (about $40 per year), or (2) by purchasing the coverage on behalf of eligible veterans from a corporation or corporations selling and administering such insurance coverage; and be it further

Resolved, That the benefit provision of such a contract be sufficient to cover (1) the average cost of hospital service in approved general hospitals, and (2) medical and surgical services rendered in such a hospital on the basis of the fee schedule that applies to veterans with service-connected disabilities; and be it further

Resolved, That such contracts cover all diseases and disabilities which require hospitalization except (1) disabilities covered by compensation laws and public liability, (2) service-connected disabilities, (3) chronic illness (extending over 90 days), (4) tuberculosis and (5) mental illness; and be it further

Resolved, That veterans with disabilities in the categories mentioned in the preceding paragraph, excepting those covered by compensation laws and public liability, be eligible for admission to Veterans' Hospitals; and be it further

Resolved, That veterans with disabilities which are in dispute as to whether or not they are service connected be eligible for admission to Veterans' Hospitals for study, treatment, and adjudication, and that the disability then be classified for these benefits according to the judgment rendered; and be it further

Resolved, That the eligibility of a veteran to receive the insurance contract mentioned above be determined on the basis of his or her net income as determined for federal income tax purposes, and that only veterans who are not liable for a federal income tax be eligible for the hospital and medical insurance contract above referred to; and be it further

Resolved, That the veteran be required to file an application for the insurance contract on a form prescribed by the Administrator of Veterans' Affairs, in which the veteran states under oath the pertinent facts concerning his or her liability for a federal income tax; and be it further

Resolved, That the Coordination Committee on Legislation of the American Medical Association be instructed to use its best efforts to secure congressional action in harmony with the proposals in these resolutions.

Report of Reference Committee on Insurance and Medical Service

The report of the Reference Committee on Insurance and Medical Service, to which the resolutions were referred, and which was adopted, reads as follows:

On the subject of the resolutions relating to the medical and hospital care of veterans with nonservice connected disabilities sponsored by the delegation from Tennessee and supported by delegates from Michigan, Wisconsin and Louisiana, the committee heard the most witnesses and spent the most time.

A substitute resolution presented to the committee by the Pennsylvania delegation was also considered. Instead of the language of either of these proposals the reference committee recommends to the House that the Board of Trustees be authorized to permit the Committee on Legislation of the American Medical Association to offer its services to the authorities of the Veterans Administration or to the Congress in seeking either administrative or legislative support for the following three principles: (1) The best possible care of all veterans with service-connected disabilities in Veterans Administration facilities; (2) the best possible care of veterans with nonservice connected disabilities who need financial support, and (3) veterans with nonservice connected disabilities who are able to do so should provide their own care.

Resolution on Change in Name of Section on Nervous and Mental Diseases

Dr. Percival Bailey, Section on Nervous and Mental Diseases, presented the following resolution:

Whereas, The term Nervous and Mental Diseases has become obsolete; and

Whereas, The terms Neurology and Psychiatry are well established and generally understood; and

Whereas, The Section on Nervous and Mental Diseases has already been referred to erroneously in The Journal as the Section on Neurology and Psychiatry; now therefore be it

Resolved, That the House of Delegates of the Association authorize the Section on Nervous and Mental Diseases to change its name to the Section on Neurology and Psychiatry.

Report of Reference Committee on Sections and Section Work

This resolution was referred to the Reference Committee on Sections and Section Work, which presented the following report which was adopted:

Your reference committee, after due consideration, recommends that this resolution be disapproved.

Resolution on Payment of Expenses of Section Delegates

Dr. Percival Bailey, Section on Nervous and Mental Diseases, presented the following resolution:

Whereas, The sections of the Scientific Assembly have no funds of their own with which to pay the expenses of their delegates; and

Whereas, The expenses of the delegates of most state associations are now paid by the organizations which they represent; and

Whereas, The number of meetings annually which the delegates have to attend has doubled, thus doubling their expenses; and

Whereas, The Section on Nervous and Mental Diseases fears that this will make it difficult to secure the sort of representation in the House of Delegates which it desires; therefore be it

Resolved, That the Board of Trustees be requested to make provision for the payment of the expenses of the delegates of the sections from the general funds of the Association.

Report of Reference Committee on Reports of Board of Trustees and Secretary

This resolution was finally referred to the Reference Committee on Reports of Board of Trustees and Secretary, which reported as follows and the report was adopted:

Since a new resolution was introduced at this session by Dr. Percival Bailey, Section on Nervous and Mental Diseases, relating to this matter, both the report of the Board and the resolution were considered by your committee at the same time. The Board of Trustees has already taken action on this matter and it is the opinion of your committee that the Board took the only practical course in denying the requested appropriations.

Resolution on Hospital Standardization

Dr. J. B. Copeland, Texas, presented the following resolution:

Whereas, The Board of Regents of the American College of Surgeons has entered into discussions with the American Hospital Association concerning the transfer of the hospital standardization program of the American College of Surgeons to the American Hospital Association; and

Whereas, Pursuant to these negotiations, even though the American College of Surgeons has stated it will continue its former program, the house of delegates of the American Hospital Association at its annual meeting in Atlantic City in September passed a resolution increasing the dues of the Association to finance a program in hospital standardization

and instructed its board of trustees to proceed forthwith to take over the inspection and standardization of hospitals; and

WHEREAS, The evaluation of medical standards in hospitals is not a proper function for the American Hospital Association, the governing members of which are predominantly laymen; and

WHEREAS, The proper and logical body to assume sole and complete control of the evaluation and standardization of medical practice in hospitals is the American Medical Association; therefore be it

Resolved, That the House of Delegates of the American Medical Association reaffirms the proposal stated in a report by a special committee to study conditions of general practice, adopted by this House of Delegates at the annual session in 1948, in which it was recommended that the sole responsibility for the evaluation and standardization of medical practice in hospitals be vested in the Council on Medical Education and Hospitals of the American Medical Association.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION

The Reference Committee on Medical Education submitted the following report which was adopted:

Hearings on this resolution were held and many members, Fellows, officers, representatives of the American Academy of General Practice and other interested persons discussed the subject at length. After much deliberation by the members of the committee, and in consideration of previous action by the House of Delegates taken in reference to this matter, especially at the 1948 meeting of the House of Delegates as indicated in the report of the Committee to Study Conditions of General Practice and subsequent action of the House of Delegates in 1949 when the action of 1948 was amended as follows and approved:

Resolved, That the American Medical Association highly commends the American College of Surgeons for its long sustained efforts in the field of hospital standardization and endorses its continued activity in this important field; and be it further

Resolved, That the Secretary of the American Medical Association transmit a copy of these resolutions to the Board of Regents of the American College of Surgeons.

In view of the fact that we have just agreed to a further study of this problem, your reference committee recommends that this resolution be not approved.

Resolution on Proposed Amendment to By-Laws, Division Three, Chapter XIII, Section 1

Dr. W. R. Brooksher, Arkansas, presented the following resolution recommending amendment to Division Three, Chapter XIII, Section 1 of the By-Laws:

WHEREAS, The President and the President-Elect of the American Medical Association are the chosen leaders of the organization and as such should be given a voice in formulating its policies; and

WHEREAS, In most medical organizations the President and the President-Elect are full members of the executive governing body; and

WHEREAS, Under our present Constitution and By-Laws, the President and President-Elect are privileged to attend the meetings of the Board of Trustees but are not members of that body; therefore be it

Resolved, That Division Three, Chapter XIII, Section 1, of the By-Laws of the American Medical Association be amended as follows:

"Composition.—The Board of Trustees shall consist of nine elected Trustees as provided in Article 7 of the Constitution, the President and the President-Elect. The Vice President, the Secretary, the Treasurer, the Speaker, the Vice Speaker, the General Manager and the Editor of THE JOURNAL may attend meetings of the Board.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO CONSTITUTION AND BY-LAWS

The Reference Committee on Amendments to the Constitution and By-Laws reported on this resolution as follows, and its report was adopted:

Your committee received a resolution from Dr. W. R. Brooksher of Arkansas with an amendment which would make the President and the President-Elect members of the Board of Trustees. Your committee is not certain as to whether such an amendment could be adopted without a complementary amendment to the constitution and by-laws, nor does your committee know whether an increase in the number of members of the Board of Trustees could be made under the laws of the charter under which the American Medical Association operates, nor is your committee of one mind as to whether the best purposes of the Association could be served by the adoption of this amendment. Your committee recommends, therefore, that this proposed amendment be referred to the permanent Committee on Constitution and By-Laws for further study.

Resolution on Federal Department of Health

Dr. Bruce Underwood, Kentucky, presented the following resolution:

WHEREAS, The health activities now being carried on by agencies of the Federal Government are of great importance to the citizens of the nation; and

WHEREAS, There are great differences in the administrative and professional technics required in the execution of health activities as distinguished from welfare, education and other activities of the federal government; and

WHEREAS, The practicability, success and desirability of the administration of health activities in a separate and distinct health agency has been demonstrated in the states; and

WHEREAS, The members of the American Medical Association have a keen interest in, and are vitally concerned by, the administrative relationships and administration standing of the federal health agencies; therefore be it

Resolved, That the House of Delegates of the American Medical Association urges all officers and members of the American Medical Association and all component associations to take immediate steps to implement the passage into law of a bill providing for: (1) a Federal Department of Health of cabinet status with a secretary who is a Doctor of Medicine and who has had special training and experience to qualify him for the position; (2) the coordination and integration of all federal health activities under this department except for the military activities of the medical services of the armed forces; (3) a Federal Board of Health under professional rather than political control whose duties shall be to appoint the Secretary of Health and to establish the policies under which the Federal Department of Health is operated.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

The Reference Committee on Legislation and Public Relations presented the following report, which was adopted:

Your Reference Committee on Legislation and Public Relations considered the resolution as presented by the Kentucky delegation regarding the establishment of a federal department of health with Cabinet status. Considerable testimony and deliberation by various officers, delegates and members of the Association led this committee to reach the conclusion that such a department with Cabinet rank would be unattainable at this time. It appears to this committee that the same results will or can be achieved by the establishment of an independent agency with executive status in which all of the federal health activities are coordinated. All federal health activities except those of the armed forces and the Veterans Administration should be separated from other functions of the government such as welfare and education. This in no manner reverses the well established stated policy of the Association with respect to a federal department of health inasmuch as that objective would be achieved by the adoption of this proposed action. Your reference committee would therefore offer the following substitute resolution:

Resolved, That the House of Delegates of the American Medical Association urges all officers and members of the American Medical Association and all constituent associations to take immediate steps to implement the passage into law of a bill providing for the coordination and integration of all federal health activities under an independent agency with executive status, except the medical services of the Armed Forces and of the Veterans Administration.

Resolution on Determining Policy of American Medical Association on Legislative Proposal

Dr. Hoyt B. Woolley, Idaho, submitted the following resolution:

WHEREAS, On numerous occasions the House of Delegates is not in session at the time many legislative proposals are being considered by Congress or committees of Congress; and

WHEREAS, The Board of Trustees is the proper body to determine the policy on legislative proposals during the time that the House of Delegates is not in session; and

WHEREAS, The House of Delegates of the American Medical Association, having full confidence in its Board of Trustees and in the committees appointed by the Board of Trustees to represent the American Medical Association before the national bodies of Congress and other groups where it is necessary to state the policy of the American Medical Association; now therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby specifically authorizes the Board of Trustees and the persons designated by them to appear as witnesses before committees of Congress or to appear before other groups where the policy of the American Medical Association is to be stated, and to do so with full authority to speak for and state the policy of the American Medical Association.

Report of Reference Committee on Legislation and Public Relations

The resolution was referred to the Reference Committee on Legislation and Public Relations, which presented the following report which was adopted:

The Committee agrees that representatives of the American Medical Association appearing before Congress and other groups should do so with full authority to speak for and state the policy of the American Medical Association and its House of Delegates. It recommends the adoption of this resolution.

Report of Committee on Chronic Diseases

Dr. Robertson Ward, Chairman, presented the following report, which was adopted:

Your committee had a profitable meeting on Dec. 4, 1950, with representatives of the United States Public Health Service, including the director of the Chronic Disease Division, Dr. A. L. Chapman. Also represented by its director, Dr. Morton I. Levin, was the Commission on Chronic Illness. The committee would like to repeat its request of last June for the addition to it of a member of the House of Delegates who is also a member of the Commission on Chronic Illness, in order that better liaison between the committee and the commission could be maintained.

From the meeting with members of the United States Public Health Service and the information furnished by them, a better understanding of the aims and objectives of the Public Health Service in the field of chronic disease was obtained. Through the printed material furnished the committee and the statements of the Director of the Division of Chronic Diseases of the United States Public Health Service, it was learned that his department, rather than seeking a large categorical appropriation, will endeavor to perform an integrative function. It was further understood by your committee that the primary objective of the Division is to evolve and test methods for controlling the chronic diseases in such a way that their efforts will not be competitive with the activities and interest of private physicians, but will be supplementary to them. Nothing could be more satisfying to your committee than strict adherence to these principles by the United States Public Health Service.

The activities of the Chronic Disease Division are divided into four categories, namely, prevention, case finding, care and restorative services. To date most of the energies of the division have been devoted to case finding, principally by means of multiphasic screening examinations. It is generally admitted that this type of examination is undergoing evaluation as a reliable technic for case finding. For this reason, your committee strongly urges those conducting such examinations to use the utmost discretion in reporting results. It is further urged that every effort be made to inform the individuals undergoing the screening process that it in no way serves as a substitute for careful periodic medical examinations. Every possible advertising device should be employed to impress this on those screened. In this connection your committee would like to call your attention to that part of the report of the Council on Industrial Health, delineating the safeguards for multiphasic screening operations.

One of the objectives of the Commission on Chronic Illness, as reported to you by this committee last June, was to stimulate in every state and locality a well rounded plan for prevention and control of chronic disease and for the care and rehabilitation of the chronically ill. It is the belief of your committee that an important step in the implementation of this objective would be the creation in each state medical association of chronic disease committees. We are informed by Dr. Levin that such committees are in existence in only 10 states at the present time. We feel that to be effective, such a committee should be composed of strong personnel who are definitely interested in chronic disease and who would be able to impress the private physician with his continuing responsibility for the care and rehabilitation of patients with chronic diseases, and for the development of sound principles of healthful living for the older-age group of the population.

Your committee cannot close this report without calling to your attention the fact that the Chronic Disease Division is only one agency in the United States Public Health Service having an interest in the problem of chronic diseases. Actually, by far the greatest proportion of federal expenditures for research and education in this field is by other agencies such as the National Institute of Mental Health, the National Heart Institute and the National Cancer Institute. For example, whereas the budget of the Chronic Disease Division is in the neighborhood of $2,000,000 annually, the budget of the National Heart Institute alone is more than nine and a half million dollars. Your committee feels that a more critical analysis of all expenditures in the chronic disease field should be prepared for you. For this reason, it is recommended that the committee be continued and furnished appropriate and adequate assistance.

Supplementary Report of Board of Trustees on Fund for Aid of Medical Schools

Dr. Louis H. Bauer, Chairman, Board of Trustees, presented the following action of the Board on Fund for Aid of Medical Schools, which was adopted on motion of Dr. B. O. Edwards, North Carolina, seconded by several and carried unanimously:

The Board of Trustees of the American Medical Association is pleased to announce to the House of Delegates that it has appropriated a half million dollars out of its National Education Campaign Fund, which was raised to defend medical freedom, for the aid and support of medical schools which are in need of additional financing.

This fund will be given to the medical schools for their unrestricted use in their basic training of future physicians.

This appropriation to aid the medical schools has been made possible by the widespread public cooperation which the profession has received from the American people in its campaign against compulsory health insurance. The fight against socialized medicine must go on until this issue has been clearly and finally resolved, but the pressure for regimentation of the medical profession has greatly lessened due to the magnificent public support which we have received.

The Board of Trustees, therefore, feels that it is keeping faith with the American people, who have given medicine such a splendid vote of confidence, when it contributes this amount to the medical schools of the nation.

There is growing public awareness that federal subsidy has come to be a burden, not a bounty, for it is bringing intolerable increases in taxation and is dangerously increasing federal controls over our institutions and the lives of our people.

American medicine feels very strongly that it should not seek federal aid for medical schools until all other means of financing have been exhausted. The Board of Trustees announced yesterday its belief that funds for this purpose could be obtained from private sources and, as practical evidence of our sincerity of purpose, this appropriation has been made as the nucleus of a fund which we hope will be greatly augmented by contributions from many other sources.

The Board hopes that this action will become a stimulus to other professions, industries, businesses, labor groups and private donors to contribute to this very important cause of protecting and advancing the interests of medical education and the public health.

The American Medical Association urges all its members to contribute individually to this cause, and we hope that doctors will take the lead in securing contributions from other sources.

Furthermore, the American Medical Association invites attention to the fact that it has been spending about a quarter of a million dollars a year for many years past to advance medical education through its Council on Medical Education and Hospitals and other departments. This appropriation, voted today, for an entirely new purpose, is in addition to nearly $285,000 already budgeted for this work during 1951.

The nation's medical schools are of the greatest importance to every American citizen and the American Medical Association has had the advancement of their standards as one of its main objectives for over 100 years. The Board of Trustees feels that if all other organizations and individuals will render support to this worthy cause in accordance with their financial ability not only will the financial security of medical schools be assured, but their freedom will be protected.

WASHINGTON NEWS

(From the Washington Office of the American Medical Association)

Civil Defense

The attitude of Senate and House committees considering Civil Defense Administration bills indicates relatively fast passage, but with important amendments. The net effect, according to present trends, will be to modify powers of the proposed administration, yet allow it adequate freedom for action in emergencies. For one thing, the Federal Bureau of Investigation has complained that the bill as written would give the administration certain investigative powers ordinarily reserved for the FBI. The FBI probably will be allowed to have its way on this point. Some questions have been raised as to the advisability of nationwide construction of bomb shelters as proposed in the bill. Governor Frank J. Lausche of Ohio thought the shelters would be inadvisable, partly because they would take materials and manpower more urgently needed for other civil defense purposes. He proposed that this section of the bill be dropped but that the rest of the bill be expedited. He also thought there should be a cut-off date for the bill. So far, medical aspects of civil defense have not had a prominent part in the hearings.

NSRB Medical Handbook

The National Security Resources Board's medical handbook, delayed several months while agencies and organizations settled their differences over its contents, now is promised for December 28. The 280 pages are said by NSRB officials to present a description of civil defense medical aspects "as complete as we can make it." One important subject will be a treatment for burns, not a standard treatment but a treatment based on items to be included in regional medical stockpiles. Officials said no effort will be made to tell physicians what treatment to use, although the limitation on stockpile items inevitably will lead to a certain degree of standardization. It was emphasized, however, that the treatment presented will not "prejudice treatment of choice on the part of physicians, nor will it prejudice later treatment, possibly by another physician."

USPHS Grants

Meanwhile, the United States Public Health Service is promoting new research into treatment of extensive third degree burns by a $9,774 grant to Dr. Vernon E. Siler, University of Cincinnati. His project is described as a study of "clinical methods of removal of devitalized tissue from burned areas." Dr. Siler will do research on the removal of such tissue by application of organic compounds such as enzymes, without resort to surgery. Another USPHS grant, of $5,616, goes to Dr. Smith Freeman, Northwestern University Medical School, to support tests in the use of a new treatment, the "pthalazines," to stimulate renal function after bodily injury. In some cases of severe wounds, it has been noted that complete stoppage of renal function results. In all, 110 grants were made to 68 institutions in 32 states, at a total figure of $826,876. Some of the larger grants also had an indirect relation to national defense. The largest, for example, went to L. M. Fisher, American Public Health Association, Inc., New York, for research in sanitation administration, methods, programs, job evaluation and personnel requirements.

Precautions for Atomic Bomb Attacks

Another project under consideration by NSRB is the mass distribution of a pocket size card giving simple precautionary rules in the event of an atomic bomb attack. It is the outgrowth of a similar Defense Department card, which already has been issued to persons employed at the Pentagon. In place of the Defense Department card's instructions for reporting to duty stations and the like the NSRB leaflet would carry instructions regarding air raid warnings. The defense card carries such advice as "By the time the debris has stopped falling, there is no radiation hazard. . . . Report to receive treatment if necessary and to work to help over-all situation. . . . Keep your experiences to yourself and don't enlarge on what you hear from others. . . . Shock pressure from burst is not enough to kill; flying debris causes almost all injuries. . . . Burns on exposed skin occur up to two miles; light-colored clothes or any shielding material afford protection; keep your shirt on. . . . Fifty per cent of radiation occurs in the first second, 80 per cent in first 10 seconds, all in first 90 seconds. . . . If in the open, fall flat. . . . Stay put 10 seconds. . . . lingering radiation is so small it is not a hazard; disregard it."

The NSRB, which helped work out the Defense card, expects the one for the general population can be printed to sell for about 10 cents per hundred. Final decision to issue the cards has not been made, but the NSRB staff is completing its work.

Scientific Manpower

The appointment of Dr. Charles A. Thomas to head a Scientific Manpower Advisory Committee in the National Security Resources Board promises to solve one problem that had begun to cause complications. The committee will help NSRB Chairman W. Stuart Symington to evaluate scientific manpower proposals from government agencies, industry and scientific organizations. Further, says NSRB, the committee "will weigh the manpower requirements of a sound basic research program with requirements for applied research and development for production." Regarding medical manpower, Dr. Thomas' committee will assume jurisdiction of those groups in health and associated fields that do not technically fall within the province of Dr. Howard Rusk's Health Resources Committee, which also advises Chairman Symington. Between the two groups, responsibility will be divided for all scientific personnel, medical and nonmedical, according to present plans. This is expected to take in medical school staffs, research workers and technical personnel on hospital staffs.

National Science Foundation Board

The National Science Foundation Board meets January 3 to recommend a foundation director to President Truman. While the 24 members of the foundation board still have not received Senate confirmation, they met at the White House in mid-December to elect officers and members to the executive committee.

James B. Conant, president of Harvard University, was elected chairman of the board and Edwin B. Fred, president of the University of Wisconsin, vice chairman. The executive committee will select its own chairman. The committee has no power to act in the name of the board but will make recommendations to the board for its final approval. The law (P. L. 507, Eighty-First Congress) states that the board may "assign to the executive committee such of the powers and functions granted to the board . . . as it deems appropriate; except that the board may not assign to the executive committee the function of establishing policies, or the function of review and approval. . . ."

Members of the executive committee are Chester I. Barnard, president of Rockefeller Foundation; Detlev Bronk, president of Johns Hopkins University; Leo A. Dubridge, president of

California Institute of Technology; Paul M. Gross, dean of Duke University Graduate School; Dr. Robert F. Loeb, bard professor of medical services, College of Physicians and Surgeons, Columbia University; Joseph C. Morris, vice president of Tulane University; Elvin C. Stakman, chief of division of plant pathology and botany, University of Minnesota, and Conant and Fred.

Chemicals in Foods

The House Select Committee investigating the use of chemicals in food products concluded its hearings with a full week's testimony from food producers, public health officials and representatives of universities. One highlight of the week was the testimony of a physician, Dr. Robert A. Kehoe, director of the Kettering Laboratory, College of Medicine, University of Cincinnati. In blunt language, Dr. Kehoe told the committee that it was involved in a complicated problem, that there was need for regulation, but that if regulations were not reasonable and practical they would do more harm than good.

"The possible deleterious effects of the occurrence or incorporation of toxic, injurious or harmful substances into food materials and beverages used widely or generally in the United States," he said, "is a problem of such broad scope in the field of public health as to baffle the most enthusiastic and experienced investigator or guardian of the public safety." However, he thought that a "reasonable and fair solution" could be arrived at but that it could not be based on a prearranged program or formula for examining new products. He said that insistence on a thorough investigation of all new chemicals used in the food industry, regardless of the merit of such an investigation, "would flood all of the presently available experimental facilities of this type in the country with such investigative work at a time when for a number of reasons they are ill prepared for it and could hardly be spared for it." Regarding proposed new federal regulations, Dr. Kehoe cautioned the committee, "No useful purpose will be served, it is believed, by the setting up of legislative requirements that cannot be met, and indeed some considerable retrograde progress is likely to result from premature developments along this line."

He argued that modifications should be adopted with regard to all factors. "The powers and scope of action by the federal government might well be expanded in such manner as to apply greater and more uniform pressure on the food-producing and food-distributing industries of the country to meet their responsibilities to the community," he said.

When the committee chairman, Representative James J. Delaney (Democrat, New York), asked him for specific suggestions on regulations, Dr. Kehoe said, "The expansion of powers, . . . in the hands of any federal agency, should be done in such manner as not to impose an impossible burden of professional responsibility on any such agency or to invest it with arbitrary powers." However, he said, present regulations need "more teeth." He favored in general the technic used by the Food and Drug Administration in testing and certifying new drugs but proposed that a board or committee of outside experts of "broad experience" be called in to determine the degree of investigation that "could reasonably be done."

When asked whether he thought the primary responsibility should rest on the producers, he said he could not answer flatly yes or no. Dr. Kehoe said he believed the producers should have primary responsibility for supplying information but that the whole weight of investigation should not fall on the private organization "willing to deal with the problem." He said he favored some sort of a foundation to underwrite research of a protective nature.

Dr. Kehoe took issue with earlier technical witnesses who condemned the use of dichlorodiphenyltrichloroethane (DDT) in cow barns. He said the chemical in milk should be kept at the lowest possible level, "but I don't see how you are going to keep it out of cows' milk. It should be used with such care that contamination will be kept at a minimum."

Legislative Notes

The Senate Labor and Public Welfare Committee has reported out S. 4229, extending benefits of Public Law 16 (Seventy-Eighth Congress) to veterans of the Korean War. Public Law 16 grants vocational rehabilitation to disabled veterans. Companion bills have been introduced in the House by Congressman John Rankin (Democrat, Mississippi) and Olin Teague (Democrat, Texas). In letters to both House and Senate, President Truman has urged immediate passage of this legislation. . . . Senator Owen Brewster (Republican, Maine) has introduced a bill making the first Monday in February National Children's Dental Health Day, permanently setting aside that day for this purpose. Previously the proclamation was made each year. There are several similar bills in both Houses. . . . The December 12 *Congressional Record* carries the complete text of the *Collier's* magazine article, "Our Alarming Doctor Shortage," by Albert Q. Maisel. It was placed in the record by Congressman Abraham Multer (Democrat, New York). . . . S. 4246, introduced by Senator Elmer Thomas (Democrat, Oklahoma), would establish a Universal Civilian Defense Training Corps for high school students. Medical and other care would be provided for members attending summer camps. Physical and dental examinations would be given yearly by private physicians and dentists on a contract basis.

Poliomyelitis

The Public Health Service reports that the poliomyelitis death rate for the first eight months of 1950 is less than half that for the corresponding period last year. The estimated rate for the first eight months of 1949 was 1.3 per 100,000 of population, whereas a sampling this year shows a rate of 0.6 per 100,000 for the same months. The percentage of cases resulting in paralysis was approximately the same for both years. A large increase in cases for September and October, however, may bring mortality figures for both years more closely together, according to USPHS officials.

Notes

A Selective Service memo to local boards urges full cooperation with Red Cross on deferment for dependency. It also requests the boards to inform draft registrants of services supplied by Red Cross to men inducted. . . . Mortality statistics for 1949 show the death rate for females is decreasing more rapidly than the rate for males. The rate per thousand for males is 11.2 and for females 8.3. . . . Copies of "Priorities in Health Services for Children of School Age," a report of recent studies, is available from the Children's Bureau, Washington 25, D. C. . . . A change in regulations regarding Bureau of Indian Affairs' policy on treating non-Indian patients in Indian hospitals appears in the *Federal Register* of December 9. . . . Defense Secretary Marshall has called for wider industrial employment of the physically handicapped as essential to national defense. In a statement to the National Employ the Physically Handicapped Committee, he said their employment contributed to the military strength of the nation. . . . General Aniline and Film Corporation has begun production of a synthetic colloid used as a basis for a blood plasma substitute. It was used in Germany during World War II but has not been available in quantity in this country until now. The colloid, polyvinyl pyrrolidone, is a white powder, soluble in water and in many organic solvents. . . . 1,400 men, brought into Army reserves as a result of the doctor draft law, have been processed and have had their physical examination. All will be called to active duty shortly. . . . At this state of mobilization, any specific estimate of future medical needs for the armed forces would be little more than speculation. The important point is that, if the manpower buildup continues as now contemplated, hundreds of men who do not now expect to serve will be in uniform before the end of next year.

GOVERNMENT SERVICES

Public Health Service

Dr. Price Appointed an Assistant Surgeon General

Dr. David E. Price has been appointed an assistant surgeon general of the Public Health Service and an associate director of the National Institutes of Health. The appointment was made by Dr. Leonard A. Scheele, the Surgeon General. The position to which Dr. Price has been appointed was created because of the growth of the National Institutes of Health and particularly because of the increased administrative responsibilities entailed by the broadening of the grants programs, the inauguration of a large cortisone and pituitary adrenocorticotropic hormone (ACTH) research program and the initiation of new research in the metabolic and neurological diseases. Dr. Scheele said that Dr. Norman H. Topping, associate director of the National Institutes of Health for the past three years, will continue in that capacity and will assist the director, Dr. William H. Sebrell, with the intramural research program, including the representation of National Institutes of Health interests with other governmental agencies.

As associate director, Dr. Price will assist the director in representing the Public Health Service's National Institutes of Health in extramural operations, including coordination of the various grants programs, community services and relations with the various voluntary organizations with which the Institutes share mutual interests.

During his administration as chief of the Division of Research Grants from 1948 to the present, the allocation of grants-in-aid for medical research to nonfederal institutions has increased from about $10,000,000 to $35,000,000 yearly. Dr. Scheele said that Dr. Price has administered this program with great effectiveness. He has maintained a major principle on which the grants program was founded—freedom of research for the individual investigator.

Dr. Price has a B.A. from the University of California, an M.D. from the University of California School of Medicine and Dr. P.H. from the Johns Hopkins School of Hygiene and Public Health. He is a diplomate of the American Board of Preventive Medicine and Public Health.

Decrease in Female Death Rate

The death rate for females is decreasing more rapidly than the rate for males according to estimates of 1949 mortality statistics compiled by the National Office of Vital Statistics. Between 1940 and 1949, the death rate for the female population decreased 13 per cent while the rate for males decreased 7 per cent. While the death rate for every age group has been declining since 1940, the rate for children 1 to 14 years decreased 40 per cent, and in the age group 65 to 74 years the decrease was only 10 per cent.

The death rate for males is higher than for females in each of the age groups. The largest relative difference between the rates for males and females in 1949 was in the age group 15 to 24 years, in which group the rate for males exceeded the rate for females by 89 per cent. The percentage differences between the death rates for males and females in the other age groups over infancy have also increased but not as rapidly.

Greek Physicians in Training in Anesthesia

Two Greek physicians arrived in the United States on November 19 for one year of advanced training under programs supervised by the Division of International Health of the Public Health Service. Both physicians were sent here for special training in anesthesia. They were selected by a committee of physicians working through the Greek Ministry of Hygiene. Dr. Evangeles Anagnostopoulos will go to Hartford Hospital, Hartford, Conn., where he will study under the direction of Dr. Ralph Tovell, director of anesthesia. Dr. Anagnostopoulos is the pathologist and assistant to the professor of surgery at the University Medical School, Salonica. Dr. Anastassios Karasoulos will report at the University of Minnesota Hospital for training under the direction of Dr. Ralph T. Knight, director of the division of anesthesiology. Dr. Karasoulos has been the consultant for the Prenatal Clinics of the Patriotic Foundation of Social Welfare and Assistance, a semiofficial agency for maternal and child hygiene.

Swineherd's Disease Due to Leptospira Pomona

The following report was released by the U. S. Public Health Service, November 23:

"The Regional Laboratory at Montgomery, Alabama (Virus and Rickettsia Section, Communicable Disease Center, Public Health Service), reports marked rises in serum agglutination titers for Leptospira pomona in 'nearly all' of 22 individuals tested. These were from a group of 50 young adults and adolescents in southern Alabama who developed signs and symptoms suggestive of aseptic meningitis. They had all bathed in an artificial swimming area of a slow moving creek on July 4, 1950. Serological tests for common central nervous system infections and for Leptospira icterohemorrhagia and L. canicola did not indicate recent infection. This is the first report in the United States of swineherd's disease due to this species of Leptospira."

Miscellaneous

Navy Reserve Officers on Duty with Army

Secretary of the Army Frank Pace Jr. has reported to the Secretary of Defense, General Marshall, that the 570 Navy reserve medical officers recently called to active duty and detailed to the Army have reported for Army duty and that "the project has been a complete success." In a memorandum to Secretary Pace and to Secretary of the Navy Francis P. Matthews, General Marshall said that he was pleased with the manner in which this processing of medical officers was accomplished at the Medical Center and that he appreciated this evidence of close and effective cooperation between the two services.

The reserve medical officers, part of the group who received their medical training under the Navy's wartime V-12 Program, were ordered to active duty for Army assignments between Oct. 15 and Nov. 6, 1950, on instructions from the Secretary of Defense. The action was taken in accordance with instructions of the President and conforms to the Department of Defense priority system for recall of medical and dental reserve officers, announced Sept. 7, 1950, for more efficient utilization of these reserve officers. Allocations of reserve medical officers, approved by Dr. Richard L. Meiling, Director of Medical Services, are made available from priority group I for duty according to the current needs of the three military services.

Committee Membership Changes

Dr. I. S. Ravdin, Philadelphia; Dr. William S. McCann, Rochester, N. Y., and Dr. Francis C. McLean, Chicago, have been appointed to the Committee on Medical Sciences of the Department of Defense Research and Development Board. These new members were on active duty with the armed forces during World War II.

MEDICAL NEWS

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ARKANSAS

Appoint Professor of Otolaryngology.—Dr. Frank S. Forman Jr., Kansas City, has been appointed professor of otolaryngology at the University of Arkansas Medical School, Little Rock, effective in January. He will do research as well as teaching and will serve in the Veterans Administration Hospital at Little Rock. Since 1946 Dr. Forman has practiced in Kansas City.

CALIFORNIA

Hospital for Imperial Valley.—Pioneers Memorial Hospital was opened recently near Brawley, at the center of valley population and the convergence of roads. The hospital will serve 65,000 persons and may be reached in a short time from any point in El Centro and Calipatria. It will eliminate trips of 125 miles to San Diego and longer ones to other California cities. The hospital has 88 beds in private and semiprivate room facilities. The central building and technical facilities are designed so that eventual growth to 200 beds can be attained.

Forty-One Doctors Achieve Emeritus Standing.—Forty-one physicians on the staff of Los Angeles County Hospital were feted at a dinner November 15. All had attained the age of 65 years and received their diplomas of service and emeritus standing on the attending staff. During the evening of reminiscence the history of the hospital was presented by two of the physicians, who traced its growth from a little adobe building on Eternity Street operated by the Sisters of Charity in 1858 to the 3,600 bed institution it is today. It has 350 house physicians and attending staff of 1,000 physicians and surgeons for its average patient load of 3,000. Those who were retired are Drs. Irving R. Bancroft, John V. Barrow, Tobias L. Birnberg, Andrew Bonthius, Charles W. Bonynge, William A. Boyce, J. Mackenzie Brown, Halbert W. Chappel, William A. Clark, Benton N. Colver, Roland S. Cummings, Guy B. Desparois, Frank S. Dolley, John Dunlop, Paul A. Ferrier, Alfred E. Gallant, Ernest M. Hall, Edward W. Hayes, Albert L. Hill, Carl R. Howson, William W. Hutchinson, Samuel D. Ingham, A. Ray Irvine, Madison J. Keeney, J. Mark Lacey, August H. Larson, George P. Laton, Edmond M. Lazard, James C. Negley, John W. Nevius, Gilbert R. Owen, Francis M. Pottenger, Hans E. Schiffbauer, Solomon Strouse, Charles T. Sturgeon, Raymond G. Taylor, Roy E. Thomas, Gilbert J. Thomas, Leslie E. Trott, Walter F. Wessels and Percival M. Williams.

CONNECTICUT

Dr. Howard Appointed Chairman of Council.—Dr. Joseph H. Howard, Bridgeport, has been chosen chairman of the Governing Council of the Connecticut State Medical Society succeeding Dr. Thomas P. Murdock of Meriden, who resigned to carry on new duties as a member of the American Medical Association's Board of Trustees. Dr. Howard is vice president of the Council of New England State Medical Societies and of the Connecticut Medical Service, and president of the Connecticut Cancer Society. In 1945 he was president of the State Medical Society. He is director of the department of obstetrics at St. Vincent's Hospital, Bridgeport, and a member of the staff at Bridgeport Hospital.

ILLINOIS

State Tuberculosis Hospital to Open.—The 100 bed Mount Vernon State Tuberculosis Sanitarium, the first state institution of its kind in Illinois, is nearing completion and is expected to open early next year. It will be operated by the State Department of Public Health. Dr. Isadore Zapolsky of Elgin, who has been appointed medical superintendent, was a staff physician at the Chicago Tuberculosis Sanitarium for many years, served as medical officer in the U. S. Army for two and a half years and has been in charge of the tuberculosis unit of the Elgin State Hospital since March 1948.

One Million Chest Roentgenograms.—The Illinois Department of Public Health has taken the one millionth chest roentgenogram in its five year old tuberculosis case-finding program. The first mobile x-ray unit began operating on Jan. 10, 1946. Today five x-ray busses and one transportable unit are in operation. The state health department works closely with local groups who sponsor the surveys, i. e., county or city health departments, county tuberculosis associations and sanatorium boards. After the roentgenograms have been processed by the Illinois Department of Public Health, they are sent to the local sanatorium or health department, where they are kept as a permanent record.

Chicago

Presbyterian Hospital School of Nursing.—Presbyterian Hospital laid the cornerstone of its 15 story $2,800,000 school of nursing November 29. When completed next summer it will house 300 students and provide administrative offices, class rooms and laboratories. The new building replaces the Sprague home on Congress Street, which is being torn down to make way for the Congress Street superhighway.

Grant for Study of Human Energy.—Northwestern University has received a grant of $4,500 from the Rockefeller Foundation, New York, for study of the creation of energy in the human body. Dr. Irving M. Klotz, professor of chemistry and biology and a member of the faculty since 1942, will direct the research. University scientists will investigate the processes by which chemical fluids in the human body combine with food particles to produce energy.

Dr. Rattner to Head Dermatology Department.—Dr. Herbert Rattner, professor of dermatology, Northwestern University Medical School, has been appointed chairman of the department succeeding Dr. Edward A. Oliver, now professor emeritus of dermatology. Dr. Rattner served as a staff dermatologist in the Cook County, Michael Reese, Augustana and South Shore hospitals before joining the medical school.

University Downtown Lectures.—A series of lectures on biologic aggression and biochemical defenses will be presented in the winter schedule of the University of Chicago's downtown center, at 19 South La Salle Street. Frank W. Putnam, Ph.D., assistant professor of biochemistry, will open the series at 8:00 p. m. January 10, when he speaks on "Bacterial Toxins and Biologic Warfare." Other lecturers will be:

Jan. 17, James W. Moulder, Ph.D., assistant professor of biochemistry, Antibodies.
Jan. 24, Bernard S. Schweigert, Ph.D., assistant professor of biochemistry, "The Principles of Biological Antagonism.
Jan. 31, James W. Moulder, Ph.D., Chemical Warfare Among Microorganisms.
Feb. 7, Bernard S. Schweigert, The Attack on Anemias.
Feb. 14, Albert Dorfman, assistant professor of pediatrics, Biochemistry of Connective Tissue.
Feb. 21, Albert Dorfman, ACTH, Cortisone and Rheumatic Diseases.
Feb. 28, Thomas B. Coolidge, associate professor of biochemistry, Biochemical Approaches to Dental Health.
March 7, Thomas B. Coolidge, Biological Defenses Against Acids and Bases.
March 14, Elwood B. Jensen, assistant professor of chemistry, The Biochemist and the Cancer Problem.

Prerequisite for the lecture series, which may be attended for college credit, is university work in chemistry, biology or physics. The series ticket is $18; single admission is $2.

In another winter series of the university advances in the fight against death and disease will be reported. Dr. William J. Dieckmann, chairman, department of obstetrics and gynecology, will open the series with a discussion on "Safe Childbirth." He will speak at 5:30 p. m. on January 9 at 19 South La Salle Street. Other lecturers will be:

Jan. 16, Thomas W. Lester Jr., assistant professor of medicine, Controlling Airborne Infections.
Jan. 30, Dwight E. Clark, associate professor of surgery and secretary of the department, Radioactive Iodine: New Treatment for Thyroid Diseases.
Feb. 6, M. Edward Davis, professor of obstetrics and gynecology, Diagnosis and Treatment of Gynecologic Cancer, Sterility and Menopause.
Feb. 13, Leon O. Jacobson, associate professor of medicine, The Fight Against Cancer.

Series tickets are $3.60 each and single admission, $1.

KANSAS

Narcotic Violation.—Dr. Hugh A. Hope, Hunter, pleaded guilty on four counts of an indictment charging violation of the federal narcotic laws in the U. S. District Court at Topeka and on October 13 was sentenced on one count to serve a term of one year and one day, was fined $3,000 on another count, and sentence was suspended on the two remaining counts. He was placed on probation for a period of three years. Execution of the sentence was suspended until December 1.

MARYLAND

Clinics for Epileptic Children.—A statewide program of assistance to epileptic children was recently begun under a special grant to the Maryland Health Department by the Children's Bureau of the Federal Security Agency. The demonstration program will be based on recent advances in the control of epilepsy. The Johns Hopkins School of Medicine and the University of Maryland School of Medicine and College of Physicians and Surgeons will cooperate in the program. The medical schools will furnish specialists to help in the operation of two diagnostic clinics in Baltimore, to which children throughout the state will be referred. All the county health departments expect to take an active part by referring children to the clinics, supplying necessary drugs and working closely with the local physicians in carrying out the treatment recommended in each case.

MISSOURI

Rehabilitation Center in St. Louis.—Washington University's plans for a rehabilitation center at the School of Medicine in St. Louis were given impetus this month when Mrs. Oscar Johnson, widow of the late shoe manufacturer, pledged 6,000 shares of the capital stock of the International Shoe Company to be applied to the project. Present value of the stock is $240,000. The sum is to be used with other gifts to construct a building that will house the occupational therapy and physical therapy research laboratories. Provision is made that, if by Jan. 1, 1956, sufficient supplementary funds shall not have been raised, proceeds of Mrs. Johnson's gift will be used for support, maintenance and development of the Oscar Johnson Institute, a hospital in the medical center for research in otolaryngology and ophthalmology. Plans for the center were drawn up after consultation with Dr. Howard Rusk, former member of the Washington University medical faculty, now at New York University-Bellevue Medical Center in New York.

MONTANA

State Secretary Goes Into Air Force.—The Executive Committee of the Montana State Medical Association has appointed Dr. Everett H. Lindstrom of Helena to succeed Dr. Herbert T. Caraway, Billings, as secretary-treasurer. Dr. Caraway was recently commissioned a major in the Medical Corps Reserve of the Air Force and is awaiting orders to report for active duty.

NEW JERSEY

Society News.—The New Jersey Orthopedic Society at the recent annual meeting elected Dr. Nicholas S. Ransohoff, Asbury Park, president; Dr. Raphael R. Goldenberg, Paterson, president-elect; Dr. Philip Willner, Newark, secretary, and Dr. Roy R. Ciccone, Passaic, treasurer.

Regional Conference on Civil Defense.—The governor of New Jersey has invited the governors of Delaware, New York, Massachusetts and Pennsylvania to invite representative teams to a four state regional conference on local health services and civil defense January 22-23 at the Nassau Tavern in Princeton. The National Health Council, through its National Advisory Committee on Local Health Units, is serving in an advisory capacity to the organizing committee.

NEW YORK

State Cancer Clinic Directory.—The Bureau of Cancer Control of the State Department of Health has prepared a directory of cancer detection centers and tumor clinics, which lists county, city, hospital and date and time of clinics throughout the state. It suggests that patients be referred through the family physician or, where this is not possible, that the clinic admitting officer be consulted concerning the proper procedure. Fee schedules vary, but no patient will be refused admission because of inability to pay, the directory states. The directory was prepared with the cooperation of city, county and district health officers, who submitted information regarding clinics in their specific areas. The directory is available to physicians, nurses and others concerned with clinic procedures.

New York City

Plea to Reserve Television Channels for Education.—The Council of the New York Academy of Medicine has endorsed the appeal to the Federal Communications Commission for setting aside at least 20 per cent of the channels available on television for educational purposes. The academy points out that, with the growth of the commercial programs, less and less time has been given to health organizations, despite the fact that radio channels are of "public domain" and are released to the stations on a privileged rather than on a proprietary basis. The reservation of a definite percentage of the available television channels for educational purposes should prevent the similar choking off of educational services on television, the academy said.

Course in Allergy.—A short course to cover four sessions on the nature and cause of allergy and its practical management will be conducted in the New School for Social Research beginning January 23 by Dr. Arthur F. Coca. Dr. Coca is honorary president of the American Association of Immunologists. He was the founder and for many years the editor of the *Journal of Immunology* and is the author of a textbook on allergy. Dr. Coca plans to encourage students to experiment throughout the course with the technic of using the pulse to determine causes of allergy symptoms.

Dr. Cherkasky to Direct Montefiore Hospital.—Dr. Martin Cherkasky, Hartsdale, N. Y., has been named director of the Montefiore Hospital to succeed Dr. Ephraim M. Bluestone, director since 1928. Dr. Bluestone was appointed consultant to the hospital, including its Montefiore Hospital Country Sanatorium at Bedford Hills. Both appointments are effective January 1. Dr. Cherkasky has been serving as full time chief of the hospital's division of social medicine. He is also physician-in-charge of the Family Health Maintenance Demonstration, recently inaugurated at the hospital.

Dr. Bluestone this month completes 30 years of service as an executive in the field of organized medical care. He served as assistant director of the Mount Sinai Hospital from 1920 to 1926 and as director of the Hadassah Medical Organization for all Palestine from 1926 to 1928. Dr. Bluestone is a member of the faculty of the Columbia University School of Hospital Administration.

Academy Requests Abstracts of Clinical Research Papers.—The Committee of Medical Education of the New York Academy of Medicine invites all research workers of Greater New York and cities within 100 miles to submit abstracts of papers for presentation at the Clinical Research Meeting to be held April 4-5, when investigators may present results of clinical research. The presentations will be confined to original research in clinical medicine or surgery, or to research applicable to medicine or surgery in all clinical branches. Preference will be given to papers that have not been presented before a society (other than intramural). Investigators are requested to state whether this work has been published or has been submitted for publication; also, in cases in which the investigator is working under the head of the department of a hospital or research institute, approval of the head of department must accompany the application. The presentation in quadruplicate, not to exceed 500 words in length, should be sent to the Secretary of the Committee of Medical Education, New York Academy of Medicine, 2 East 103d Street, New York 29, not later than February 1. A formal invitation to participate in the program will be extended by the committee to the authors of papers selected.

OHIO

Hospital News.—Ground was broken in November for the new Youngstown Receiving Hospital, which is to be built at a cost of about $1,000,000. This will be the ninth receiving hospital in Ohio.

Museum Models on Reproduction Available.—Bruno Gebhard, director, Cleveland Health Museum, announced December 6 that the museum will carry on the work of Dr. Robert Latou Dickinson, originator and designer of the world famous "Birth Series" models for lay and professional education. Since 1945 the Cleveland Health Museum has held exclusive duplication rights on these life-size, three dimensional models of human reproduction. Duplicates are available. Illustrated folders will be sent on request.

SOUTH CAROLINA

State Orthopedic Association.—The South Carolina Orthopedic Association was organized at a meeting November 8 in Columbia. Members of the association will be active fellows, engaged in practice of orthopedic surgery exclusively, and junior fellows, physicians who are in training for practice in orthopedic surgery. After the organizational meeting Dr. Peter B. Wright, professor of orthopedic surgery at the University of Georgia School of Medicine, Augusta, spoke on the basic principles of the specialty. Officers elected are Dr. William A. Boyd, Columbia, president; Dr. Austin T. Moore, Columbia, vice president, and Dr. George R. Dawson Jr., Florence, secretary-treasurer. Elected to the executive committee were officers of the association and Dr. Frank H. Stelling, Greenville, and Dr. Frank A. Hoshall, Charleston.

UTAH

Cancer Research Building.—A four story, $413,000 cancer research building is scheduled to open in December as a part of the proposed University of Utah Medical Center in Salt Lake City. The basement of the structure will be used for tracer studies with radioisotopes. The first floor will be occupied by offices, a library and seminar rooms, the second floor will be devoted to biochemical research, the third floor to studies of the physiology of cancer and the fourth to biologic research. Special rooms will include a tissue culture laboratory, dark rooms, optical laboratories and rooms for housing experimental mice.

WEST VIRGINIA

Society News.—Dr. Raphael J. Condry, Elkins, was named president of the West Virginia Heart Association at the annual meeting in Huntington, October 26-27. Dr. James L. Wade of Parkersburg was named vice president; Dr. John S. Pearson of Huntington, secretary, and Mr. R. E. Plott of Charleston, treasurer.

Establishing a Four Year Medical School.—The house of delegates of the West Virginia State Medical Association at a special meeting in Clarksburg November 19 went on record unanimously in favor of establishing a four year school of medicine and dentistry as a part of West Virginia University. Resolution urging the creation of the school had previously been adopted at regular sessions of the house of delegates in August 1949 and July 1950. It was the first called meeting of the delegates in recent years and was one of the most largely attended meetings ever held by the association. A copy of the resolutions adopted by the Board of Governors of the West Virginia University October 27 was read. The board recommended the "immediate expansion of the university's present two year medical school into a four year medical and dental school, teaching hospital, nurses training school and state health center on the campus of the university at Morgantown." The study on which this recommendation is based shows that the required capital expenditures for this program would total from $750,000 to $1,000,000.

The discussion at the meeting also included the reports filed by Dr. Herman G. Weiskotten, dean of Syracuse (N. Y.) University College of Medicine, and Dr. Wilburt C. Davison of Durham, N. C., dean of Duke University School of Medicine, who made surveys concerning the need for such a school and both of whom advocated the immediate construction of a four year school. The next regular session of the legislature will convene at Charleston January 10, and if the usual procedure is followed, the report of the Interim Committee will be submitted to the governor and the legislature early in the session.

WISCONSIN

Course on Cortisone and ACTH at Madison.—The University of Wisconsin Medical School will present January 17 an intensive one day course on cortisone and pituitary adrenocorticotropic hormone (ACTH), designed to appeal to physicians in practice. The course will be supervised by Dr. Edgar S. Gordon, associate professor of medicine, with Dr. Seymour B. Crepea, assistant professor of medicine, and Roland K. Meyer, Ph.D., professor of zoology, assisting. Two medical films will be presented through the courtesy of Armour Laboratories, Chicago. The fee is $3. Further inquiry should be directed to Dr. Robert C. Parkin, 418 North Randall Avenue, Madison 6.

GENERAL

American Academy of Forensic Sciences.—This organization will hold its third annual meeting March 1-3 at the Drake Hotel, Chicago. All persons desiring to present papers are requested to contact Dr. Abraham W. Freireich, chairman of the program committee, 180 Hempstead Avenue, Malverne, N. Y. Additional information may be obtained from the office of the president, Dr. R. B. H. Gradwohl, 3514 Lucas Avenue, St. Louis 3.

Course in Orthoptics.—The American Orthoptic Council will present its fourth annual intensive course in orthoptics in Boston, July 5-Aug. 31, 1951. Tuition is $150. The council will make an effort to see that all students enrolled have places to complete their practical training following the course. Applicants must be at least 18 years of age, have had a high school education and be sponsored by an ophthalmologist. A few scholarships are available from the Delta Gamma Fraternity Project. Inquiries should be addressed to the American Orthoptic Council, Dr. Richard G. Scobee, 40 S. Kingshighway, St. Louis 10.

Masons Finance Research on Dementia Precox.—The Supreme Council, Thirty-Third Degree, of the Ancient Accepted Scottish Rite of Freemasonry for the Northern Jurisdiction, comprising the states north of the Ohio River and east of the Mississippi River, has appropriated $1,000,000 to endow a benevolent foundation, the endowment fund to be increased from time to time. A sum of $50,000 was appropriated for further research into dementia precox. The Supreme Council began its program of study on demential precox 18 years ago and has expended $900,000 in the work up to the present time. Dr. Richard A. Kern of Philadelphia is chairman of the council's Committee on Benevolences.

Society Elections.—Newly elected officers of the New England Obstetrical and Gynecological Society are Dr. Arthur T. Hertig, Winchester, Mass., president; Dr. Joseph H. Howard, Bridgeport, Conn., vice president; Dr. Frederick L. Good, Boston, treasurer, and Dr. Carmi R. Alden, Boston, secretary.—— New officers of the Western Surgical Association elected at the meeting in Minneapolis December 1 include Dr. Erwin R. Schmidt, Madison, Wis., president; Dr. Michael L. Mason, Chicago, secretary, and Dr. Herbert H. Davis, Omaha, treasurer. The next annual meeting will be held in Colorado Springs at the Broadmoor Hotel Nov. 29-Dec. 1, 1951.

Dr. Kern to Head Editorial Board.—Starting with the January issue, the *American Journal of the Medical Sciences* will be under the editorial direction of Dr. Richard A. Kern, professor and head of the department of medicine, Temple University School of Medicine, Philadelphia. With Dr. Kern will be a new associate editor, Dr. Thomas M. Durant, professor of clinical medicine at Temple, and a new assistant editor, Dr. Chris J. D. Zarafontis, associate professor of internal medicine at Temple. These men will succeed the former editorial board headed by Dr. Edward B. Krumbhaar of the University of Pennsylvania, Philadelphia. Dr. Krumbhaar retired after 25 years' association with the journal.

Reports on Epidemics.—Dr. Archie L. Gray, Mississippi State Board of Health, has reported to the U. S. Public Health Service an outbreak of acute gastroenteritis in a city with a population of 40,000. There were 18 cases with onset of illness between September 16 and 25. Investigation revealed that a cream-filled pastry was the vehicle of transmission.

Dr. W. R. Geidt, Washington State Department of Health, has reported an outbreak of 13 cases of trichinosis in Seattle. The vehicle of infection was thought to be sausage made late in October from hogs shipped from the West North Central states. The onset of infection was early in November. Diagnosis was confirmed clinically and by muscle biopsy in one case. The routine processing of meat was considered to be satisfactory.

Dr. Williams Wins Chemistry Award.—Professor Roger J. Williams, Sc.D., of the University of Texas, widely known for work in the field of vitamins, was chosen the 1950 winner of the Southwest Award of the American Chemical Society at the society's annual Southwest regional meeting. Professor Williams has been director of the University of Texas Biochemical Institute since 1940. The award, a bronze plaque and $200 in cash, was presented to him at a luncheon in San Antonio, December 9. He came to the University of Texas in 1939. He has been consulting biochemist at the M. D. Anderson Hospital for Cancer Research, Houston, since 1942. He serves on the Food and Nutrition Board of the National Research Council and was formerly with the U. S. Public Health Service. He has received the Mead Johnson Award of the American Institute of Nutrition and the Chandler Medal of Columbia University, which he shared in 1942 with his brother, Robert R. Williams, Sc.D., New York.

Meeting of International College of Surgeons.—The Southern Section of the International College of Surgeons will meet at the Biltmore Hotel, Atlanta, Ga., January 11-13. The program lists the following lecturers and their subjects:

Amos R. Koontz, Baltimore, Tantalum Mesh in Hernia Repair.
Karl Meyer, Chicago, Trends in Treatment of Carcinoma of the Left Colon.
Merrill N. Foote, Brooklyn, N. Y., Nodular Goiter.
Harry Bacon, Philadelphia, Postoperative Abdominal Wound Dehiscence.
Raymond McNealey, Chicago, Ulcerative Colitis.
Arnold S. Jackson, Madison, Wis., Surgical Lesions of the Neck.
Philip Thorek, Chicago, Trends in Esophageal Surgery.

Other speakers include Drs. Herbert Acuff, Knoxville; Richard Cattell, Boston; Gilbert F. Douglas Jr., Birmingham, Ala.; Lawrence S. Fallis, Detroit; William G. Hamm and Exum Walker, Atlanta, Ga.; De Lou P. Hall, Louisville, Ky.; Claude J. Hunt, Kansas City; Frank Meleney, New York, and Howard D. Trimpi, Philadelphia.

Damon Runyon Clinical Research Fellowships.—The Committee on Growth of the National Research Council, acting for the American Cancer Society, is accepting applications for Damon Runyon Senior Clinical Research Fellowships. These fellowships in cancer research are financed by a grant of $110,000 from the Damon Runyon Memorial Fund to the American Cancer Society. Applications should be filed before March 1, 1951, on behalf of the applicant by the institution where the fellow will be in residence. Applications will be considered in April and fellowships ordinarily will begin July 1, though this date may be varied at the request of the fellow. Awards are made directly to the institution on an annual basis and renewal may be requested. Persons now holding these fellowships will be notified regarding applications for renewal. Communications should be addressed to the Executive Secretary, Committee on Growth, National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D. C.

FOREIGN

Poisonous Smog Kills 15 in Mexico.—A poisonous refinery smog which spread over the suburb of Poza Rica, an eastern Mexico oil town, took the lives of 15 persons November 24, according to the Associated Press. Forty of the 60 persons affected were hospitalized, and three were in serious condition the following day. It is believed that the smoke from a refinery plant mixed with a heavy fog was blown down on the settlement. Poza Rica is surrounded by oil and gas wells in the low hills, and the afflicted settlement, which bears no name of its own, is among these hills.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 26-28. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ARIZONA: * *Examination.* Phoenix, Jan. 17-19. *Reciprocity.* Phoenix, Jan. 20. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

ARKANSAS: * *Regular.* Little Rock, June 7-8. Sec., Dr. Joe Verser, Harrisburg *Eclectic.* Little Rock, June 7. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Written.* Los Angeles, Feb. 26-Mar. 1. *Oral.* San Francisco, Jan. 20. Los Angeles, Feb. 24. *Oral and Clinical for Foreign Medical School Graduates.* Los Angeles, Feb. 25. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

COLORADO: * Denver, Jan. 3-5, 1951. Exec. Sec., Mrs. B. M. Hudgens, 831 Republic Bldg., Denver.

CONNECTICUT: * *Examination.* Hartford, March 13-14. Sec. to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, March 13-14. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: Dover, Jan. 9-11. *Reciprocity.* Jan. 18, 1951. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

GEORGIA: Atlanta, June. Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. John Y. Battenfield, Agana.

HAWAII: Honolulu, Jan. 8-11, 1951. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

IDAHO: Boise, Jan. 8, 1951. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

ILLINOIS: Chicago, Jan. 9-11. Superintendent of Registration, Mr. Charles F. Kervin, Capitol Bldg., Springfield.

INDIANA: Indianapolis, June 20-22. Exec. Sec., Miss Ruth V. Kirk, 1138 K. of P. Bldg., Indianapolis 4.

MAINE: Portland, March 12-13. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Baltimore, June 19-22. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1.

MASSACHUSETTS: Boston, Jan. 23-26, 1951. Sec., Dr. Geo. R. Schadt, 37 State House, Boston.

MINNESOTA: * Minneapolis, Jan. 16-18. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSOURI: *Examination.* Jefferson City, Feb. 19-21. *Reciprocity.* Jefferson City, Feb. 12. Ex. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

MONTANA: Helena, April 2-4. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

NEBRASKA:* June 1951. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln.

NEVADA: Carson City, Feb. 5. Sec., Dr. George H. Ross, 112 Curry St., Carson City.

NEW HAMPSHIRE: *Examination.* Concord, March 14-15. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 19-22. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, April 10-11. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

NEW YORK: *Examination.* Albany, Buffalo, Syracuse and New York City, Jan. 30-Feb. 2. Sec., Dr. Jacob L. Lochner, 23 S. Pearl St., Albany.

NORTH CAROLINA: *Reciprocity.* Winston-Salem, Jan. 15. Sec., Dr. Joseph J. Combs, 419 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 3-6. Sec., Dr. C. J. Glaspel, Grafton.

OKLAHOMA:* *Examination.* Oklahoma City, June 6-7. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: * Portland, January 4-6. Sec., Mr. Howard I. Bobbit, 608 Failing Bldg., Portland 4.

PENNSYLVANIA: Philadelphia, January 1951. Acting Secretary, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: *Examination.* Santurce, March 6. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND:* Providence, Jan. 4-5. Chief, Division of Profesional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Reciprocity.* Columbia, Jan. 2, Feb. 6, March 5, April 2. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * Jan. 15-16. Sioux Falls, South Dakota. Sec., Dr. C. E. Sherwood, 109 Center St., West, Madison.

UTAH: Salt Lake City, July 1951. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

VERMONT: Burlington, February 1951. Sec., Dr. F. J. Lawliss, Richford.

VIRGIN ISLANDS: St. Thomas, June 12. Sec., Dr. Earle M. Rice, St. Thomas.

WASHINGTON: * Seattle, January 1951. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

WEST VIRGINIA: Charleston, Jan. 8-10. Sec., Dr. N. H. Dyer, State Capitol, Charleston 5.

WISCONSIN: * River Falls, Jan. 9-11, 1951. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: *Examination.* Cheyenne, Feb. 5. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: *Examination.* Feb. 10. Executive Asst., State Board of Healing Arts, Mr. M. G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* April, 1951. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

FLORIDA: *Examination.* Gainesville, June 2. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, Jan. 9. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Detroit and Ann Arbor, Jan. 12-13. Sec., Miss Eloise LeBeau, 101 No. Walnut St., Lansing 15.

MINNESOTA: *Examination.* Minneapolis, Jan. 2-3. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

NEBRASKA: *Examination.* Omaha, Jan. 9-10. Dir., Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

OKLAHOMA: *Examination.* Oklahoma City, March 27. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

RHODE ISLAND: *Examination.* Providence, Feb. 14. Chief, Division of Professional Regulation, 366 State Office Bldg., Providence.

TENNESSEE: *Examination.* Memphis, Dec. 27-28. Sec., Dr. O. W. Hyman, 874 Union Avenue, Memphis.

TEXAS: *Examination.* Latter Part of April. Sec., Bro. Raphael Wilson, 306 Nalle Bldg., Austin.

WASHINGTON: Seattle, January 1951. Sec., Mr. Edward D. Dohm, Department of Licenses, Olympia.

WISCONSIN: *Examination.* Madison, April 7. Sec., Mr. W. H. Barber, Scott and Watson Sts., Ripon.

* Basic Science Certificate required.

Coming Medical Meetings

American Academy of Allergy, Hotel Statler, New York, Feb. 5-7. Dr. Walter S. Burrage, 208 E. Wisconsin Ave., Milkaukee 2, Secretary.

American Academy of Orthopaedic Surgeons, Palmer House, Chicago, Jan. 27-Feb. 1. Dr. Harold B. Boyd, 122 S. Michigan Ave., Chicago 3, Secretary.

American Society for Surgery of the Hand, Palmer House, Chicago, Jan. 26. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

Atlanta Graduate Medical Assembly, Municipal Auditorium, Atlanta, Ga., Feb. 5-7. Mrs. Stewart R. Roberts, 768 Juniper St. N.E., Atlanta, Executive Secretary.

International Post-Graduate Medical Assembly of Southwest Texas, Municipal Auditorium, San Antonio, Jan. 23-25. Dr. John H. Hinchey, P. O. Box 2445, San Antonio 6, Secretary.

DEATHS

Palmer, Walter Walker ⊕ New York; born in Southfield, Mass., Feb. 27, 1882; Harvard Medical School, Boston, 1910; served an internship at the Massachusetts General Hospital in Boston, where he accepted the Henry P. Walcott Fellowship and where from 1913 to 1915 he served as resident physician; was an instructor in physiological chemistry at Harvard; in 1915 moved to the Rockefeller Institute in New York, serving as an assistant in medicine and assistant resident physician; in 1917 became associate professor of medicine at Columbia University College of Physicians and Surgeons; during World War I served as first lieutenant in the medical reserve corps of the U. S. Army; in 1919 accepted the full time position of associate professor of medicine at Johns Hopkins University and was made an associate visiting physician to the Johns Hopkins Hospital, where he remained until 1921; later returned to New York, becoming Bard professor of medicine at Columbia and director of the medical service at the Presbyterian Hospital, serving in this capacity until 1947, when he became emeritus professor at the school and consultant in medicine at the hospital; since 1947 director of the Public Health Research Institute of New York; past president of the Harvey Society and the American College of Physicians, of which he had been a vice president, governor and regent; member of many professional societies, including the Association of American Physicians, the American Society for Clinical Investigation, the Society for Experimental Biology and Medicine and the New York Academy of Medicine; member of the National Board of Medical Examiners from 1921 to 1943; during World War II served as chairman of the Committee on Drugs and Medical Supplies of the National Research Council and was a member of its committee on medicine; an advisor to the War Production Board and a member of the advisory committee of the Office of Scientific Research and Development; in 1945 and 1946 was chairman of the medical advisory committee appointed by Vannevar Bush to prepare a report for the President on the establishment of a National Science Foundation; in 1919 appointed to the Council on Pharmacy and Chemistry of the American Medical Association, in which he served as vice chairman from 1936 until his retirement in 1947; recipient of the honorary degree of Doctor of Science from Amherst College in 1922, from Columbia in 1929 and Princeton in 1947; his early collaboration with Prof. L. J. Henderson culminated in the classical studies on acid-base equilibrium; made significant contributions to knowledge of diabetes, thyroid physiology and the management of thyroid disease; author of numerous articles and at one time was a member of the editorial board of *Medicine* and also of the *Archives of Internal Medicine;* at the time of his death was editor in chief of the Nelson Loose-Leaf Medicine and chairman of the advisory committee of the *American Journal of Medicine;* died suddenly on his farm at Tyringham, Mass., October 28, aged 68, of coronary disease.

Nuttall, John Price, Santa Monica, Calif.; born in Port Royal, Ky., Jan. 30, 1878; Hospital College of Medicine, Louisville, Ky., 1902; member of the American Medical Association and in 1938 and 1939 a member of its House of Delegates; past president of the American Association of Medical Milk Commissions; past president and vice president of the Los Angeles County Medical Society; formerly secretary of the Henry County (Ky.) Medical Society and health officer of Henry County; served on the staff of the Battle Mountain Sanatorium in Hot Springs, S. D.; during World War II was a member of the Committee on Procurement and Assignment of Los Angeles County; emeritus chief of staff at Santa Monica Hospital; died in the Veterans Administration Hospital in West Los Angeles October 7, aged 72, of arteriosclerosis.

Milnor, Guy Champion ⊕ Honolulu, Hawaii; born in Warrensville, Pa., Jan. 31, 1887; University of Pennsylvania School of Medicine, Philadelphia, 1914; past president of the Hawaii Territorial Medical Association and Honolulu County Medical Society; formerly secretary of the Hawaiian Territorial Board of Medical Examiners and for many years member of the board of health; served during World War I; member of the selective service appeal board; fellow of the American College of Surgeons; consulting obstetrician and gynecologist, Kapiolani Maternity and Gynecological Hospital, where he was a member of the board; senior member of the clinic; consultant and gynecological surgeon, St. Francis Hospital and the Queen's Hospital, where he died October 26, aged 63, of cerebral hemorrhage.

Doughty, Roger Gamble, Columbia, S. C.; born in Augusta, Ga., in 1895; Johns Hopkins University School of Medicine, Baltimore, 1920; past president of the Columbia Medical Society and past vice president of the Southern Surgical Association; president of the South Carolina Surgical Society; member of the American Medical Association, Eastern Surgical Society and the Southeastern Surgical Congress; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; affiliated with Columbia Hospital, where he was a member of the board of trustees, and Veterans Administration Hospital; consulting surgeon, South Carolina State Hospital and Camden (S. C.) Hospital; died October 19, aged 55, of coronary occlusion.

Carr, Alexander Moncrieff, Lewisburg, W. Va.; born in Edinburgh, Scotland, Oct. 1, 1889; University of Pennsylvania School of Medicine, Philadelphia, 1918; member of the American Association of Industrial Physicians and Surgeons; formerly assistant professor of preventive medicine and public health at Detroit College of Medicine and Surgery, now Wayne University College of Medicine in Detroit; while located at Madison, Wis., was connected with the U. S. Public Health Service and was health officer of that city; formerly health officer of Bradley County, Tenn.; health officer for district number two, which includes Monroe, Pocahontas and Greenbrier counties; died suddenly in Charleston November 13, aged 61, of coronary occlusion.

Carter, William Wesley, Bronxville, N. Y.; born in Wilmington, N. C., Nov. 23, 1869; University of the City of New York Medical Department, New York, 1895; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; consulting otolaryngologist, South Side Hospital, Bayshore, Bellevue Hospital and Gouverneur Hospital, New York; rhinoplastic surgeon, Elizabeth (N. J.) General Hospital; died in St. Simons Island, Ga., October 11, aged 80, of heart disease.

Toumey, James William ⊕ Boston; Columbia University College of Physicians and Surgeons, New York, 1926; specialist certified by the American Board of Orthopaedic Surgery; member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served overseas in the U. S. Naval Reserve during World War II; consultant in orthopedic surgery, U. S. Naval Hospital, Chelsea; affiliated with the Lahey Clinic, New England Deaconess Hospital and the New England Baptist Hospital, where he died October 18, aged 50, of carcinoma of the liver.

Meyer, Monte Fiore ⊕ New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1914; clinical assistant professor of otolaryngology at Louisiana State University School of Medicine; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly secretary of the New Orleans Ophthalmological and Otolaryngological Society; served during World War I; member of the staff of Hotel Dieu, Charity Hospital and Eye, Ear, Nose and Throat Hospital; died October 3, aged 56, of coronary occlusion.

Walker, Thomas Franklin ⊕ Great Falls, Mont.; born in Kokomo, Colo., in 1890; University of Colorado School of Medicine, Denver, 1912; specialist certified by the American Board of Pathology; fellow of the American College of Physicians; member of the American Society of Clinical Pathologists; served as secretary-treasurer of the Medical Association of Montana; past president of the Cascade County Medical Society; formerly county health officer; on the staff of Columbus Hospital, where he died October 22, aged 60, of carcinoma of the right lung.

Doran, William Guy ⊕ New York; born in New York Oct. 14, 1885; Cornell University Medical College New York, 1911; formerly associated with the U. S. Public Health Service; served during World War I; member of the American Academy of Orthopaedic Surgeons; fellow of the International College of Surgeons and the American College of Surgeons;

⊕ Indicates Fellow of the American Medical Association.

affiliated with the Medical Center, Jersey City, and St. Mary's Hospital, Hoboken, N. J.; on the staff of St. Vincent's Hospital; died in South Orange, N. J., November 1, aged 64, of carcinoma of the stomach.

Lynam, Frank, Minneapolis; Harvard Medical School, Boston, 1893; affiliated with the Barnes Duluth Shipbuilding Company during World Wars I and II; in 1922 administrator of the American Relief Administration in Russia; part time instructor in surgery, 1928-1929, surgeon in health service from 1929 to 1935 and instructor in first aid during the same period at the University of Michigan Medical School in Ann Arbor; at one time medical supervisor for the British government in the Bahamas; died October 8, aged 84, of cancer of the pelvic bone.

Adles, Max, Normandy, Mo.; Missouri Medical College, St. Louis, 1898; member of the American Medical Association and the Illinois State Medical Society; formerly practiced in DuQuoin, Ill., where he had been a member of the board of health; died October 11, aged 82.

Baird, Frank Bennett ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1907; team physician of the Philadelphia Athletics for many years; died October 23, aged 72, of carcinoma of the kidney.

Barber, John Phineas, Minneapolis; University of Louisville (Ky.) Medical Department, 1886; member of the American Medical Association; served on the staffs of St. Mary's and Deaconess hospitals; died October 13, aged 93.

Bate, James Robert, Tallahassee, Fla.; Meharry Medical College, Nashville, Tenn., 1931; died recently, aged 50, of essential hypertension.

Beckford, Henry Shedd ✠ Lieutenant Colonel, U. S. Army, retired, Vancouver, Wash.; Dartmouth Medical School, Hanover, N. H., 1899; served during World War I; entered the medical corps of the U. S. Army as a major in 1920; promoted to lieutenant colonel in 1937; retired Oct. 31, 1938; died October 28, aged 76.

Bianchini Vincent Anthony, Cranston, R. I.; Boston University School of Medicine, 1934; member of the American Medical Association; served during World War II; on the staffs of St. Joseph's Hospital and Roger Williams General Hospital; died suddenly October 8, aged 41.

Bluhm, Kilian Kalonymos, New York; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1916; specialist certified by the American Board of Psychiatry and Neurology; member of the American Medical Association and the American Psychoanalytic Association; died October 6, aged 60.

Bowker, Alphonso Varion, Athol, Mass.; University of Vermont College of Medicine, Burlington, 1879; for many years a member of the school board, served as associate medical examiner in the district and a member of the board of health; died October 9, aged 93, of carcinoma of the prostate.

Brown, George W., Raeford, N. C.; Kentucky School of Medicine, Louisville, 1898; member of the American Medical Association; served two terms in the state legislature; for many years chairman of the county board of education; formerly mayor and coroner; died October 16, aged 78.

Cabell, Abram L., Terre Haute, Ind.; Howard University College of Medicine, Washington, D. C., 1895; member of the American Medical Association; died in Culver October 6, aged 84, of cerebral hemorrhage.

Cannon, Clair R., Ellsworth, Wis.; Marquette University School of Medicine, Milwaukee, 1913; member of the American Medical Association; died November 3, aged 59, of coronary thrombosis.

Carter, George Clayburn, Jamaica, N. Y.; Albany (N. Y.) Medical College, 1914; member of the American Medical Association; died in Columbia-Presbyterian Medical Center, New York, October 19, aged 59.

Champlin, Paul Morrow, East Orange, N. J.; Detroit College of Medicine and Surgery, 1914; formerly on the staff of the East Orange General Hospital; served during World War I; died October 24, aged 65, of pleurisy with effusion and cardiovascular disease.

Christensen, Bryant Elliott ✠ Fort Bayard, N. Mex.; Cornell University Medical College, New York, 1925; certified by the National Board of Medical Examiners; served during World Wars I and II; affiliated with the Veterans Administration; died October 18, aged 52, of coronary thrombosis.

Clark, John Vincent, Oklahoma City; University of Oklahoma School of Medicine, Oklahoma City, 1939; member of the American Medical Association; served during World War II; affiliated with Capital Hill General Hospital, Wesley Hospital and Mercy Hospital, where he died September 20, aged 36, of subacute yellow atrophy of the liver and duodenal ulcer.

Coller, Granville J., Los Angeles; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1880; died in the Hospital of the Good Samaritan October 24, aged 96, of pneumonia.

Connole, Joseph Vincent ✠ Wilkes-Barre, Pa.; Jefferson Medical College of Philadelphia, 1912; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staff of the Nesbitt Memorial Hospital, Kingston, and Mercy Hospital, where he died October 15, aged 61, of cerebral hemorrhage.

Cook, Arthur Ellsworth, Randolph, Neb.; Sioux City (Ia.) College of Medicine, 1898; for many years member of the board of education; member of the American Medical Association; past president of the Nebraska State Medical Association; died in Sioux City, Iowa, November 3, aged 80, of coronary thrombosis.

Craig, Samuel Halleck, Philadelphia; Jefferson Medical College of Philadelphia, 1910; died recently, aged 73.

Davidow, Samuel H., Youngstown, Ohio; Jefferson Medical College of Philadelphia, 1920; member of the American Medical Association; on the staff of Youngstown Hospital, where he died October 6, aged 54.

Disque, Andrew A., St. Joseph, Mo.; Central Medical College of St. Joseph, Mo., 1902; member of the American Medical Association; died September 16, aged 73.

Dobson, James Furman, Ridgeway, S. C.; University of Maryland School of Medicine, Baltimore, 1914; served overseas during World War I; president of the Ridgeway Bank; died in Tri-County Hospital, Orangeburg, September 22, aged 59, of cancer.

Dougherty, J. Milburn Sr., Nickelsville, Va.; Kentucky School of Medicine, Louisville, 1893; died September 6, aged 79.

Dunham, Adeline Frances, Cambridge, Mass.; Tufts College Medical School, Boston, 1906; member of the American Medical Association; died September 17, aged 68, of coronary thrombosis.

Dyer, Frank Merritt ✠ Binghamton, N. Y.; Cornell University Medical College, New York, 1902; fellow of the American College of Surgeons; associated with Binghamton City Hospital and Binghamton State Hospital; consulting surgeon, Ideal Hospital, Endicott; died October 12, aged 78, of carcinoma of the prostate.

Eaton, Chelsea ✠ Oakland, Calif.; University of Louisville (Ky) School of Medicine, 1926; died in San Francisco October 9, aged 52.

Ehresmann, Joseph John, Richmond Heights, Mo.; St. Louis University School of Medicine, 1905; member of the American Medical Association; died October 20, aged 72.

Evans, John Corlise, Cincinnati; Eclectic Medical Institute, Cincinnati, 1893; for many years associated with the New York Central Railroad; served on the board of education, on the staffs of the Bethesda Hospital and St. Mary's Hospital, where he died October 9, aged 78, of injuries received in an automobile accident.

Farrell, Robert Lawrence, Providence, R. I.; Tufts College Medical School, Boston, 1931; member of the American Medical Association; served in the European theater during World War II; associated with Rhode Island, St. Joseph's, Charles V. Chapin and the Roger Williams General hospitals; died October 3, aged 43, of hypertensive heart disease.

Low, Triumph C., ✠ Los Angeles; Chicago Homeopathic Medical College, 1897; died September 17, aged 78, of pneumonia.

Lowe, Kenneth Vincent, New Kensington, Pa.; University of Pittsburgh School of Medicine, 1933; on the courtesy staffs of the Allegheny Valley Hospital, Tarentum, and Citizen's General Hospital; died in Columbia Hospital, Wilkinsburg, October 15, aged 42, of coronary occlusion.

McDonough, John Patrick ✠ Corona Del Mar, Calif.; John A. Creighton Medical College, Omaha, 1920; for many years practiced in Gunnison, Colo.; killed October 5, aged 56, when the automobile which he was driving in Newport Beach was struck by a fire engine.

McDuffie, James Henry, Columbus, Ga.; University of Pennsylvania School of Medicine, Philadelphia, 1916; member of the American Medical Association; past president of the

Muscogee County Medical Society; served in France during World War I; died in City Hospital September 27, aged 62.

Macy, Mary Sutton, New York; New York Medical College and Hospital for Women, Homeopathic, 1904; formerly served on the faculty of her alma mater; medical examiner for the Pennsylvania Mutual Life Insurance Company; died October 15, aged 70.

Mahar, Gregory Doyle, Syracuse, N. Y.; Syracuse University College of Medicine, 1922; member of the American Medical Association, assistant professor of pediatrics at his alma mater; served as health commissioner of Syracuse and as epidemiologist for the city health department; affiliated with St. Joseph and City hospitals; died October 1, aged 58, of bronchopneumonia.

Margoles, Maxon Edward, Milwaukee; University of Wisconsin Medical School, Madison, 1930; on the staff of Mount Sinai Hospital, where he died October 8, aged 44, of coronary disease.

Mason, L. Dudley, Middletown, Ky.; University of Louisville Medical Department, 1902; member of the American Medical Association; served in the medical corps of the U. S. Army during World War I and on the Selective Service Board during World War II; died October 11, aged 74.

Massey, William Walton ✦ Quincy, Fla.; University of Georgia Medical Department, Augusta, 1911; past president of the Third District Medical Society; on the staff of Gadsden County Hospital; died October 4, aged 62, of coronary occlusion.

Mayfield, James Isaac, Blue Mountain, Miss.; Memphis (Tenn.) Hospital Medical College, 1909; member of the American Medical Association; past president of the Northeast Mississippi Medical Society; for many years college physician at Blue Mountain College; served as president of the Bank of Blue Mountain; died in Baptist Memorial Hospital, Memphis, Tenn., October 12, aged 68, of congestive heart failure.

Middlebrooks, Violet McMillian, St. Petersburg, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; died October 5, aged 73, of renal insufficiency and renal calculi.

Moore, Dudley A., Lander, Wyo.; Sioux City (Ia.) College of Medicine, 1906; formerly associated with the Indian Service; died September 8, aged 71, of hemorrhage due to gastric ulcer.

Musante, Joseph Bernard, Glen Cove, N. Y.; University and Bellevue Hospital Medical College, New York, 1920; died in the North Country Community Hospital, October 3, aged 60, of cirrhosis of the liver.

Mutschler, Louis H. ✦ Merion, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; fellow of the American College of Surgeons; consulting surgeon, Hospital of the Protestant Episcopal Church, where he was chief surgeon for many years; formerly surgeon of Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases and St. Christopher's Hospital for Children, Philadelphia; at one time associated with the Philadelphia Rapid Transit Company; died October 2, aged 78, of pneumonia.

Plummer, Orlay Edward ✦ Rawlins, Wyo.; Emory University School of Medicine, Atlanta, 1931; formerly vice president of the Carbon County Medical Society; member of the American Association of Railway Surgeons and the Pacific Association of Railway Surgeons; served in the European theater during World War II; died September 26, aged 49, of hypertension.

Porter, Leroy Valentine, Altoona, Iowa; Drake University Medical Department, Des Moines, 1900; died in Woodward October 19, aged 78, of cancer.

Preston, Anna Louisa, Marietta, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; died August 29, aged 87.

Price, Jerry Clay ✦ Los Angeles; Tulane University of Louisiana School of Medicine, New Orleans, 1928; member of the Association for the Study of Internal Secretions; formerly associated with the Neurological Institute of New York in New York; died in Good Samaritan Hospital September 24, aged 46, of cancer.

Richards, George Henry ✦ Sioux Falls, S. D.; Trinity Medical College, Toronto, Canada, 1904; served on the staff of the Veterans Administration Center; died in Ione, Wash., October 11, aged 71, of cerebral hemorrhage.

Rochester, John Robert Fountain, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1900; for many years on the staff of Women's Homeopathic Hospital; died September 14, aged 77.

Roeber, William John, Winters, Calif.; University of the City of New York Medical Department, New York, 1892; formerly practiced in Newark, N. J., where he was associated with Lutheran Memorial and St. Michael's hospitals and the Hospital of St. Barnabas and the Hospital for Women and Children; died September 26, aged 79.

Townsend, Charles Kennard ✦ Arkadelphia, Ark.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; served during World War I; died September 20, aged 60, of cerebral hemorrhage.

Tripp, Leroy Richard ✦ Washington, Iowa; State University of Iowa College of Medicine, Iowa City, 1909; past president of the Woodbury County Medical Society; died September 20, aged 64, of bronchopneumonia and multiple sclerosis.

Vigeland, Jorg G., Brinsmade, N. D.; Milwaukee Medical College, 1910; died recently, aged 74.

Ward, Edgar Ewell, Dallas, Texas; Meharry Medical College, Nashville, Tenn., 1915; president of the Excelsior Life Insurance Company; died September 27, aged 58, of heart disease.

Warlick, Henry Clinton, Bluefield, W. Va.; University of Maryland School of Medicine, Baltimore, 1918; died in Lexington, Ky., recently, aged 57, of cerebral hemorrhage.

Weigel, Bernard John, Gorham, Kan.; John A. Creighton Medical College, Omaha, 1917; formerly surgeon in the U. S. Public Health Service reserve; served on the staff of the Russell City Hospital in Russell; died September 15, aged 54, of injuries received in an automobile accident.

Westly, Soren S. ✦ Manly, Iowa; State University of Iowa College of Medicine, Iowa City, 1909; president of the Worth County Medical Society; vice president of the staff of Mercy Hospital in Mason City; died October 21, aged 68, of heart disease.

White, George Floyd, Cranston, R. I.; College of Physicians and Surgeons, Boston, 1905; formerly school committeeman; served on the courtesy staff of Roger Williams General Hospital, Providence, where he died September 23, aged 71, of arteriosclerotic heart disease, pyelonephritis and uremia.

Wilker, William Fawthrop ✦ Iola, Wis.; State University of Iowa College of Medicine, Iowa City, 1928; formerly practiced in New York, where he was affiliated with the Lenox Hill Hospital; died September 30, aged 47, of coronary thrombosis.

Wills, William Judy ✦ Springfield, Mo.; Beaumont Hospital Medical College, St. Louis, 1901; an Associate Fellow of the American Medical Association; member of the American Urological Association; served overseas during World War I; died in St. John's Hospital September 24, aged 75, of injuries received in an automobile accident.

Wilson, Thomas Phillip, St. Louis; Washington University School of Medicine, St. Louis, 1929; served during World War II; on the staff of St. Luke's Hospital; died October 4, aged 45, of coronary disease.

Wimmer, George Glenn ✦ Mount Etna, Ind.; Beaumont Hospital Medical College, St. Louis, 1899; served during World War I; died in the Huntington (Ind.) County Hospital October 13, aged 75.

Wood, Samuel Houston ✦ Jackson, Miss.; Chicago College of Medicine and Surgery, 1917; served overseas during World War I; on the rating board of the Veterans Administration; died in King's Daughters Hospital, Yazoo City, October 20, aged 58, of coronary thrombosis.

Wright, Elmer D., ✦ Seymour, Ind.; Physio-Medical College of Indiana, Indianapolis, 1900; died September 25, aged 76, of chronic glomerulonephritis.

Wrinkle, Thomas D., Springfield, Mo.; Ensworth Medical College, St. Joseph, 1887; member of the American Medical Association; died October 11, aged 93.

Young, Josephine Estabrook, Evanston, Ill.; Northwestern University Woman's Medical School, Chicago, 1896; formerly on the faculty of her alma mater and Rush Medical College in Chicago; died October 4, aged 84, of cerebral hemorrhage.

Young, Lemon Randle, Indianapolis; Flint Medical College of New Orleans University, 1905; died September 26, aged 72, of cerebral hemorrhage.

Zander, Paul A., Kankakee, Ill.; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1908; member of the American Medical Association; on the staff of the Kankakee State Hospital, where he died September 23, aged 67, of uremia and diabetes mellitus.

FOREIGN LETTERS

LONDON

(From a Regular Correspondent)

Oct. 17, 1950.

Library Association Conference

Role of the Medical Library.—During the Annual Conference of the Library Association held recently in London, a meeting of the medical section was arranged at the Wellcome Research Institution, on September 20, to discuss the role of libraries in the advance of medicine. The chair was taken by Mr. W. R. Le Fanu, librarian of the Royal College of Surgeons. Sir Cecil Wakeley, the president of the college, said that the conference celebrated the centenary of the public library movement in Great Britain. Many medical libraries, of course, were much more than a century old, and they varied greatly in type and function. Many attempts have been made to coordinate the activities of various libraries. More than 40 years ago, when he first came to Oxford, Sir William Osler founded a Medical Library Association of Great Britain, but it proved short lived. Twenty years later Sir D'Arcy Power promoted a measure of cooperation among the medical libraries of London; the Royal Society of Medicine had organized, with the Rockefeller Foundation, the Central Medical Bureau, to act as a clearing house for readers' inquiries, to obtain the necessary literature from associated libraries and pass it on to all parts of the world in photographic reproduction.

The medical section of the Library Association founded in 1947 acted as a link between medical libraries and provided a forum for the discussion of common problems. Services to readers rather than conservation of books was the keynote of library work. The opportunity had therefore been taken to invite a number of leading representatives of varying interests to give their views on the present state of medical libraries and on the most urgent needs for their improvement.

Library Services for the Research Worker.—Dr. C. H. Kellaway, director in chief of the Wellcome Research Institution, said that, in general, medical research was a continuous process, an accumulation of facts until the time was ripe for their coordination and for the making of some generalization on which further research could be based. It was rare for scientific discoveries to break entirely new ground, and it was part of the library service to make sure of the connecting links. He emphasized the onus on the research worker himself to make a critical study of the relevant literature. He pointed out that one commonly found papers describing observations and results which, unknown to the writer, had been published some years before. However, he went on to point out the values of this repetition of earlier work, which was scarcely ever done by a worker of ability without some new angle of truth being brought into view. He also pointed out the difficulty of maintaining an efficient library service when units of an organization were scattered over a considerable area.

Role of the Librarian.—Dr. Hugh Clegg, editor of the *British Medical Journal*, said that medical librarianship was now a highly skilled profession for which an exacting training was necessary. A library that was solely a storehouse for books and periodicals had only a limited use for those ultimately responsible for the advance of medicine. The storehouse must be converted into something dynamic, and the instrument for this purpose was the trained librarian. He quoted the thirteenth edition of the Encyclopaedia Britannica (1926), which states that libraries are now coming to be regarded more and more as workshops. He emphasized the librarian's task of the collection of periodicals. It was an onerous one, especially now that textbooks were out of date as soon as they were published and the periodical had become more and more important.

Library Users.—Mr. Zachary Cope, a London surgeon, spoke as a library user who had received the most ungrudging help from medical libraries. He said libraries could diffuse medical knowledge more quickly than any other facility. The speaker said that he had recently had the duty of reviewing some German textbooks on surgery and had been surprised at the lack of knowledge concerning some things which were commonly known in this country, the use of penicillin for example. Many German libraries had been destroyed during the war, and free communication had been interrupted. Although much was being done to remedy these evils, the effect of the literature was still woefully apparent. The part of the library which was most valuable to the research worker was that concerned with current periodicals. There were 15,000 or more medical journals, and it was impossible for any library to carry more than a small proportion. He deplored the fact that young men depended on a librarian to look up their references for them. To look up one's own reference was a valuable means of education.

Prof. E. C. Dodds spoke of the Library of the Royal College of Physicians, part of which dated from the Great Fire and had an uninterrupted existence from the sixteenth century. At that library there were works on every subject—not only on medicine, but on astrology, theology and oriental philosophy. The library was now being carefully surveyed by the college authorities. He thought this extraordinary collection of books would be of great value to research.

Mr. W. A. Lees spoke of the librarian of an old provincial library founded by a few physicians and surgeons in Liverpool, about 170 years ago. He said that in these changing days it was difficult to foresee what might happen to the older established libraries depending for their income on subscriptions of members. This was how they would continue to play their part now that new libraries had been set up in teaching and other hospitals by the Regional Hospital Boards. He thought that there should be some method whereby these collections, made many years ago, could ke kept up to date and be useful for succeeding generations.

Medicine in the Public Library.—Mr. Geoffrey Stephens, librarian of the Borough of St. Marylebone, described an important scheme whereby each of the 28 London boroughs had accepted responsibility for specializing in their libraries in one particular branch of literature. Marylebone, probably because it included Marley Street and about twice as many hospitals as any other borough, as well as central pharmacies and orthopedic establishments, had been asked to specialize in medicine. The speaker had been reluctant to undertake this, foreseeing morbid curiosity on the part of the lay public, but a nucleus of the medical section had been created. Previous experience had shown that the demand was chiefly for preclinical literature of some standard encyclopedias. Requests came mainly from hospital nurses, medical students and those working in medical ancillary occupations. He thought the policy was a good one, although it had been better received than he, in his reluctance, had thought possible. Several of the speakers criticized public libraries specializing in medical literature. It was pointed out that it would be absurd to expect library committees, unless there were medical persons on them, to build up a useful section.

The Bibliophile Service.—Mr. G. R. Edwards, Secretary of the Royal Society of Medicine, said that the establishment of libraries in hospitals, teaching or otherwise, was an excellent idea. Facilities provided all over the country were woefully inadequate. The papers appearing in less easily available sources and the bibliophile documentation service which the Royal Society of Medicine had sponsored might be recommended.

A small nonprofit fee was charged as the service was extended from Reykjavic to Singapore. Hardly any day of the week passed without a film strip's being dispatched from London conveying information to medical persons in distant parts of the world, information which was unobtainable in their local libraries. Mr. Edwards applauded what had been said of the necessity of training medical librarians. Speed in obtaining the desired information was of great importance. In conclusion, the chairman said that all problems concerning the subject, including possibly the joining of forces of the libraries of smaller medical societies and the restoration of hospital libraries, were receiving careful consideration.

ITALY

(From a Regular Correspondent)

FLORENCE, Oct. 10, 1950.

International Meetings

At the International Meetings of Verona, reported on in a previous letter, Prof. E. Moniz of Lisbon, Nobel Prize winner, spoke on present day neurosurgery, with special regard to contributions made by the Portuguese. Sicard, through intraspinal injection of iodized oil, achieved precise location of compression of the medulla oblongata, but for cerebral tumors the problem was more serious. While Dandy's ventriculography was known, the method entailed risk for the patient. Moniz conceived the technic of tumor location by rendering the cerebral arteries opaque, to permit observation of the deviations of the arteries. The initial problems were (1) to obtain a liquid opaque to roentgen rays that could be injected without danger into cerebral circulation, (2) to ascertain whether the internal carotid artery tolerated the needle puncture and the injected substance and (3) to determine the possibility of temporary blocking of blood flow to the brain, without danger to the patient.

After many experiments, Moniz and his co-workers succeeded in obtaining arteriograms of arteries of the brain in dogs (in collaboration with Prof. Almeida Lima) and cerebral arteriograms in human cadavers, which revealed the normal distribution of arteries. After this experimental work, cerebral arteriography was performed clinically for the first time. At first sodium iodide was used as the contrast medium and then colloidal suspension of thorium dioxide (thorotrast®). This was subsequently replaced by easily eliminated iodine compounds. Cerebral tumors were diagnosed by this technic; the circulation of some tumors was observed and their volume determined. Also cerebral angiomas could be demonstrated and the differential diagnosis of cerebral aneurysms could be made.

The speaker was awarded the Nobel Prize for his work on prefrontal leukotomy. He stated that the reactions which take place at the synapsis are those which determine the mental makeup, and disturbances of these reactions cause the so-called functional psychosis. The concept of prefrontal leukotomy arose from the supposition that severing of diseased junctions would alter the pathway of the impulses, permitting cure of the mentally sick. The frontal lobes were chosen as the site of leukotomy because their function is linked, although vaguely, to the human mind. In the first 20 patients operated on by Prof. Almeida Lima in collaboration with Prof. Moniz, one third of the patients were cured, another third were improved and a third were unimproved. According to the speaker, further progress is needed in this field.

Treatment of Typhoid and Brucellosis

At the session of the Academy of Sciences of Ferrara, presided over by Professor Dogliotti, reports on modern treatment of typhoid and brucellosis were presented. Drs. Gualandi, Pederzini and Temussi reported on results they obtained in treatment of brucellosis with paraaminosalicylic acid and its calcium salt. The drug was administered by mouth in daily doses of 8 to 10 Gm. for 8 to 10 days. Defervescence by crisis occurred on the second or at the latest on the seventh day, with considerable improvement of the general condition. Drs. Sandri and Cavicchi reported their results with the use of chloramphenicol and aureomycin in typhoid, paratyphoid A and brucellosis. Both drugs were administered in doses of 0.25 Gm. every three hours, and the treatment was continued for a few days after normal temperatures were obtained. In brucellosis, apyrexia was obtained on the second or third day of treatment with aureomycin. In typhoid and paratyphoid A treated with chloramphenicol, there was a rapid drop in temperature followed by a definite improvement of the general condition and permanent cure. The patients with paratyphoid A who were treated initially with aureomycin did not show improvement, but recovery resulted from combined treatment with chloramphenicol. Drs. Ruberti and Neri reported on patients with typhoid treated with chloramphenicol; they observed a drop in temperature between the seventy-second and ninety-sixth hour after the start of treatment. They concluded, however, that such therapy does not influence the pathological process or prevent relapses and perforations. Drs. Magri and Melli reported on 13 cases of brucellosis treated with a daily dose of 1 Gm. of aureomycin. Defervescence was rapid and definitive in the majority of the cases.

TURKEY

(From a Regular Correspondent)

ANKARA, Nov. 15, 1950.

The 1950 Census

When the first census was taken in Turkey, in 1927, the population was 13,648,270; the second census, in 1935, showed an increase to 16,158,018; the third, in 1940, to 17,820,950, the fourth census, in 1945, to 18,860,222 and the fifth, taken on Oct. 22, 1950, to 20,902,628. Immigration accounts for an increase of about 20,000 persons. Istanbul, the largest city, has a population of 1,001,002, the capital, Ankara, has 285,143, Izmir has 230,473, Adana has 118,247 and Bursa has 101,096 inhabitants. The birth rate, 40-42 per thousand, is highest in rural communities, which contain 73 per cent of Turkey's population. The natural increase during the last five years is 21.3 per thousand. Birth control is prohibited by law since the 1930 public health act. Twenty-five years of public health work has raised the nation's standard of health, and the effect of untoward conditions resulting from the war have gradually disappeared.

Turkish Whooping Cough Vaccine

Epidemics of whooping cough occur in Turkey usually after an epidemic of measles in the spring. When in August 1948 an epidemic of whooping cough in the environs of Izmit (Smyrna) was reported, the Ministry of Health appointed Dr. Sabahaddin Payzin and Dr. Necmeddin Akyay from the Refik Saydam Institute of Hygiene at Ankara to administer the vaccine that had recently been prepared at this institute and to report on the results. Of the 646 children vaccinated 12, or 2.9 per cent, were 6 months old; 60, or 9.2 per cent, were 6 to 12 months old; 182, or 24 per cent, were 1 to 3 years old; 204, or 31.8 per cent, were 4 to 5 years old; 141, or 20 per cent, were 6 to 10 years old, and 30, or 4.6 per cent, were 10 to 20 years old. The patients received doses of 0.25, 0.50, 0.75, 1.00 and 1.5 cc. of vaccine with two to three day intervals. Of the 646 patients, 480, or 75 per cent, recovered. In children 1 to 5 years old, vomiting, whooping and coughing disappeared after

the second and third vaccination; in children 5 to 10 years old, they disappeared somewhat later. Untoward reactions have not been observed. There was one death, caused by pneumonia, a complication of measles. Forty-two, or 6.5 per cent of the patients failed to return for vaccination. The vaccine was also used for preventive inoculation of 32 children; all remained immune during the epidemic. The Turkish whooping cough vaccine was prepared from domestic strains and used soon after preparation.

Central Anti-Tuberculosis Institute in Istanbul

An agreement has been reached by the World Health Organization of Geneva and the Ministry of Health and Social Assistance of the Turkish Republic according to which physicians and nurses from Middle East countries take a postgraduate course in antituberculosis work at the Central Anti-Tuberculosis Institute in Istanbul. WHO will furnish the equipment and will be responsible for the remuneration of the teaching staff and traveling expenses for participants in the course. The center is to function under the auspices of the World Health Organization for a limited time, and then it is to be an integral part of the Ministry of Health and Social Assistance and is to be directed by Turkish specialists. Currently the courses are directed by Dr. Etienne Berthet, WHO turberculosis consultant.

After completion of the theoretical and practical course in which almost all Middle East countries will be represented, the participants are to engage in antituberculosis work in their respective countries. Last summer Turkish physicians and nurses took a three month introductory course, which was the start of special training for Turkey's antituberculosis work. The Ministry of Health has required 95 Turkish physicians to take the first course, which is now in session. The theoretical course will be conducted by Ord. Prof. Tevkif Saglam of Istanbul University. The 500 bed tuberculosis sanatorium at the Heybeliada in the Sea of Marmara, the Haydar Pasha tuberculosis hospital, the 500 bed tuberculosis hospital at Yedikule, Istanbul, and the 14 tuberculosis dispensaries (to which 6 are soon to be added) will provide opportunity for practical experience.

The first society for the prevention of tuberculosis was established in Istanbul in 1916, but because of the prolongation of the war and the many untoward conditions after it, the society was short lived. Actual tuberculosis control work started in 1923 with the founding of the Izmir Society for the prevention of tuberculosis and the restablishment of the Istanbul Society in 1926. In 1931 the tuberculosis death rate in Istanbul was 203 per 100,000; it had decreased by 1939 to 187, but war conditions brought the rate up again. Ord. Prof. Tevkif Saglam has for more than 15 years directed the tuberculosis prevention work in Istanbul.

SPAIN

(From a Regular Correspondent)

MADRID, Oct. 1, 1950.

Roentgenography of the Small Intestine

Dr. C. Marina Fiol and his co-workers have published, since 1941, a series of roentgen studies on the pathology of the small intestine. It was discovered that in cases of superficial enteritis the passage of the contrast substance through the small intestine is either normal or delayed, contrary to the general opinion that passage is accelerated in this condition. They described an intestinal disorder characterized by effusions that generally coincide with emotional moments and that occur in labile young persons who suffer great anxiety and mental conflict. Roentgenologically, this syndrome is characterized by a rapid passage of the contrast substance through the small intestine. Dr. Fiol believes that this syndrome is purely functional. It is due to a vagal hypertonia. He calls it neurointestinal asthenia. The name has the same significance with respect to the small intestine as neurocirculatory asthenia has with respect to the circulatory system. Fiol and his co-workers also studied stagnation in the lower angle of the duodenum, which they believe is not due to functional stricture but to a superficial inflammation similar to that which occurs in sprue. They described superficial ileitis, which develops with clinical symptoms similar to those of appendicitis. In 1941, the authors described a series of roentgen areolar images of the terminal ileum that show diffuse hyperplasia of the lymphatics of the intestine. (This roentgen aspect was described by American roentgenologists in 1945.) The authors consider that this syndrome is physiological in children and pathological in adults. They called it follicular ileitis, a name used by German pathologists who saw this type of hyperplasia only in the cadavers of children dying of diarrhea. The authors point out that Crohn's disease is rare in Spain. They note that various factors may play a role in the development of this syndrome. Changes in the ileum with rigidity and loss of the structural characters of the mucosa, which the author calls granulomatous ileitis, is frequent in Spain. This condition probably constitutes the early phase of Crohn's disease. The authors described, also, a clinical form of ileitis following typhoid, characterized by lesions in the terminal segment of the ileum. In one patient post-typhoid ileitis was followed by Crohn's syndrome. The most important roentgen observations reported are those by which an early diagnosis of intestinal tuberculosis is made. According to the authors, the terminal segment of the ileum is most frequently involved by early lesions. In many cases a nodule, the "alarm nodule," is observed in the upper external portion of the ileum. This nodule, caused by hyperplasia of Peyer's patches, becomes ulcerous. Pictures of round and annular tuberculous ulcers were obtained by the production of pressure on the terminal segment of the ileum. The initial lesions often disappear after a short time. In other cases, however, they are the starting point of large tuberculous lesions, the diagnosis of which can be made only by evidence of the classic roentgen aspects of intestinal tuberculosis, namely, lesions in the cecum and in the ileocecal sphincter and the presence of Stierlin's radiologic sign. Fiol has also carried on clinical and roentgen studies on sprue and other syndromes of the small intestine that are secondary to diseases of other organs and apparatus. He discusses the mechanism and the roentgen and clinical aspects of these diseases in his book "Roentgenography of the Small Intestine," recently published in Spain.

Psychosomatic Pathology

A school of psychosomatic pathology has begun to function in the department of neuropsychiatry of the General Hospital of Madrid. Professor J. J. López Ibor, head of this department, is also director of the school. Weekly sessions are held at which various related subjects and illnesses are discussed. Professor López Ibor and his associates are trying to establish the principles for a general psychosomatic pathology. If the large number of articles on the subject, especially those of the American School, are analyzed, the psychic profile that accompanies somatic diseases is evident. A group of somatic diseases, such as arterial hypertension, hyperthyroidism, migraine, anuresis and mucomembranous colitis, constitute the true nucleus of psychosomatic pathology. Among the elements of the psychological profile, the aggressive tendencies, a perfectionist tendency and tendencies of an obsession type are dominant. Anxiety is fundamental in all cases. A profound psychopathological interpretation of the character of patients with any of the aforementioned diseases shows that all have an "anxiety structure." The aggressive tendencies, the obsessions and the phobias in these patients are outward manifestations of this anxiety structure. Besides these, other work in progress includes a psychopathological study of marihuana addicts and studies of the indications for transorbital leukotomy.

Prof. López Ibor is official speaker at the next International Congress of Psychiatry. He will speak on "Indications of Biologic Methods in Psychiatric Diseases." Dr. Guera, head of the psychology department of the same clinic, is also official speaker at the congress. He will speak on "Methods of Projection in the Psychiatric Clinic."

BRAZIL

(From a Regular Correspondent)

RIO DE JANEIRO, Nov. 10, 1950.

Intestinal Schistosomiasis

Manson schistosomiasis, or intestinal mansoniasis, is a more important health problem in Brazil than it seemed five years ago. Exact knowledge of the prevalence of the principal helminthiases throughout this large country is still fragmentary, even for the most important ones, i. e., hookworm disease and intestinal schistosomiasis. The national department of health in 1947 planned a five year uniform survey of diseases caused by helminths, to ascertain their geographic distribution and incidence throughout the country. Because of the limited personnel and appropriations, it was decided to restrict the survey to school children (7-14 years of age) of localities of 1,500 inhabitants or more. A recent report by Drs. A. Barca Pellon and Isnard Teixeira describes the work done during the first three years of the survey, which included 11 of the 20 states of Brazil, in the northeastern and middle eastern Atlantic states, represented by 889 localities with a present population of over 4,500,000. The first part of the survey was begun in July 1947 in the northeastern states of Alagoas and Sergipe, already known as important foci of the infestation, and was extended, in 1948, to Pernambuco and Minas Gerais (first half), and in 1949 to Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Espirito Santo and Minas Gerais (second half), to be concluded on June 24 of this year, in the state of Bahia. For the performance of all phases of this enormous survey of the eastern third of the country, the cooperation of local health and educational authorities, mayors, teachers, postmasters and railroad station masters was secured. The technic used for the microscopic examination of the stools was the spontaneous sedimentation concentration method of Hoffmann, Pons and Janer, already extensively tested in Brazil by J. A. Meira and Vianna Martins.

Completion of the first part of the School Helminthologic Survey, as it is currently called, took 757 days of effective work, costing 3,061,627.30 Brazilian cruzeiros, the equivalent of about $153,000, for the examination of 440,786 school children, an average of 582.28 persons examined per day and 495.26 per locality. The average cost per child examined was about 34.7 cents. Of the 646,409 children registered in the schools of the 889 localities surveyed, 440,786 were examined, or 68.19 per cent, this percentage ranging from the minimum of 46.26 for the 30 localities of the state of Sergipe to 81.68 for the 221 localities of the state of Bahia. Of the 889 localities included in the survey, 611 had cases of infestation. The minimum number of cases in a locality was 7, in the state of Maranhão, and the maximum 211, in the state of Bahia. The total number of school children with infestation was 44,477, or a general index of positivity of 10.09 per cent for the sample surveyed, this index ranging from the minimum of 0.04 per cent for the state of Piauí (four cases in 10,424 children examined) to the maximum of 29.80 per cent for the state of Sergipe (5,134 cases in 50,977 children examined). There were, however, large variations of the index of positivity within each state: thus, in Sergipe, for example, where the index was maximum (29.80), it varied, for the 30 localities with positive cases, from 1.30 to 91.34, for the locality Rosario do Catete in the central part of the state, one of the five districts into which Sergipe is divided. Even by districts, which in this small state include an average of six localities for each, the variation of the positivity index is also great, decreasing from 62.82 for the central district, to 28.49, 21.62, 12.94 and 3.19, for the coastal, west, middle and lower São Francisco River districts, respectively.

Plotted on the map of the country, these results show that intestinal schistosomiasis infestation forms small more or less sparse foci in the northern states of Maranhão, Piauí, Ceará and Rio Grande do Norte (with a general positivity index for the zone of 1.07, which varied from 0.04 (Piauí) to 2.32 (Rio Grande do Norte), to take a more regional character of large zonal foci, in the states of Paraíba, Pernambuco, Alagoas, Sergipe and Bahia, in the bulge of northeastern Brazil, with a general positivity index of 19.42, ranging from 7.49 for the state of Paraíba, to 25.09 for Pernambuco and up to 29.80 for Sergipe. The area of endemicity of the parasitosis is broken by the valley of the São Francisco River, so that, in the state of Bahia, the general index for the whole region of this valley, the western plateau and the southern part of the state, close to Minas Gerais, falls to 3.81. For the state of Minas Gerais itself, more to the south, the general index is 4.92, with 0.04, in the southern zone, and 12.09, 16.62 and 30.02 in other zones of the same state.

Of the 611 localities with positive stools for ova of the parasite, only 381 showed positivity indexes higher than 4 per cent. If one takes into account that the average number of children examined per locality was 495.26, this minimum incidence would correspond to at least 19 cases of infestation per locality, which is probably a number of cases sufficient to characterize the existence of a focus, since those cases would involve children of school age. The incidence is significantly higher in male than in female children and higher in children living in rural districts than in towns. Typical of these differences are the figures for Sergipe, the state with the highest general positivity index: 32.98 against 27.15 for the two sexes and 36.46 to 29.37 for the character of the district of residence.

Erythrocyte Values of Adolescent Workers in Rio de Janeiro

Dr. Rubens Bastos of the Division of Industrial Hygiene, Ministry of Labor, published a report on the study of the erythrocyte values of adolescent workers (14 to 17 years) of both sexes, with the establishment of the curves of age distribution of the corpuscular values within those age limits. The report represents another Brazilian contribution to the knowledge of the variation of the red cell characteristics in connection with some social, geographic and anthropologic factors. The study was based on a group of 745 subjects of both sexes (471 males and 274 females) from 14 to 17 years of age. All were born in Rio de Janeiro or had lived in that city several years. Of the 471 males, 301 were white and 170 colored; of the 274 females, 133 were white and 141 colored. These adolescent workers were employed in industrial establishments (textiles, glass, rubber, metal foundries, carpentry), and all had been previously subjected to a simple medical examination, including a roentgenogram of the chest. The main results of the study may be summarized as follows: the mean corpuscular hemoglobin concentration is identical in both sexes at age 14 and is practically the same, but begins to be different for the boys, at ages 15, 16 and 17. This difference is very slight between ages 14 and 15 and between ages 16 and 17, but is larger and significant between these two groups. The mean corpuscular volume and the mean corpuscular hemoglobin present a similar variation. Contrary to the results of Milan and Muench, no significant differences were observed between white and colored persons. A last important point is represented by the age at which the erythrocyte value in the male is stabilized. In the adult man, in Rio de Janeiro, the mean corpuscular hemoglobin concentration is not less than 14.54 per cent, which is the average for the 17 year group.

CORRESPONDENCE

TOUR OF THE FAR EAST

To the Editor:—Having just completed (Oct. 30, 1950) a six weeks' tour of the Army and some of the Navy and Air Force medical facilities in the Far East, including those in the Inchon-Seoul area, I feel that the impressions gained might be of interest to the profession, especially to those who served in World War II and those who anticipate military service. My tour as Consultant in Internal Medicine to the Surgeon General of the Army afforded the opportunities of observing problems on the spot, of seeing problem cases, of making ward rounds, of participating in conferences and briefings, of getting the "low down" from former students as well as from those with whom I had served in the South Pacific in World War II, of discussions with head nurses and dieticians and of having the Army Theatre Consultant in Internal Medicine for the Far East, Col. Francis Pruitt, accompany me throughout the tour. It is on these opportunities that the following impressions of the functioning of the United States Army Medical Corps in the present conflict are based:

1. The personnel of the military services received and are receiving superior medical care, which is conducted at times under most trying circumstances. Medical personnel and supplies in medical facilities in Japan were grossly depleted to provide immediate treatment of the wounded in the forward areas. Countless lives were saved by the evacuation of patients by air to hospitals in Japan. As of October 9, more than 17,000 had been transferred in this manner. Patients leaving Pusan by air were in a modern hospital, the 118th Station Hospital at Fukuoka, in one hour. A considerable number of patients were picked up in forward positions by helicopters. It is my opinion that Mr. Drew Pearson was misinformed or uninformed concerning the military medical services in the Far East. Otherwise, his public statements would have been closer to fact.

2. The number of doctors and nurses were inadequate until about October 5. Momentarily the medical staff of the Army Tokyo General Hospital of 1,200 beds (expanded to 2,000 beds later) was reduced to seven physicians—a measure necessary to provide emergency care at the front. A maximum of efficiency was made possible by the improved policy of appropriate assignment of specially trained personnel when this was practicable—a policy which is kept up to date by the functioning of the theatre consultants.

3. A great medical tragedy was avoided by having, on immediate call, physicians taking residency courses in military and civilian hospitals under the auspices of the Army. When the peak demand for doctors was reached, more than 50 per cent of the physicians in this theatre were physicians whose residencies had been abruptly interrupted. At one time all the medical officers except the commanding officers of five hospitals were physicians whose residency training had been interrupted. It is important for everyone interested in the care of military personnel to know that, had it not been for the Residency Training Program adopted by the Army after World War II, our forces would have been faced with the tragedy of a crippling inadequacy of physicians when called on to enter a suddenly precipitated and unanticipated conflict. The unavoidable delay of 90 days in getting reserves into action would have cost many lives, and the care of the sick and injured could not have been anything but inferior. Surely, foresight in training could not have been turned to better advantage.

In an age in which the onset of conflict is likely to be sudden and unexpected a reservoir of physicians with more than average training and available on a moment's notice is invaluable. We will do well to appreciate the sacrifices these young physicians have made and from one who has seen them in action, not for an eight or 10 hour day but until the job at hand was done—days on end with only a few hours' respite—they have my sincere admiration.

4. The absence of serious epidemics. Dysentery, due to Shigella organisms, was common but relatively mild and responded promptly to chloramphenicol therapy. The most serious illness encountered has been Japanese B encephalitis. The mortality ranged from 10 to 15 per cent, and tragic residual manifestations are common. Fortunately the season for this disease ended in October. Hepatitis is endemic but is not a great military problem. Two deaths occurred in one week from this disease when the total number of such patients being treated was approximately 100. The reappearance of a mortality, due to hepatitis, in troops is due, in all probability, to the impaired nutritional and physical state of the patient as a result of combat and not a change in the virulence of the virus. A small number of cases of scrub typhus has been seen.

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BANTHINE® IN THE THERAPY OF PEPTIC ULCER

To the Editor:—Various agents (vagotomy, the atropine-belladonna group) have been used to lessen vagal function in the treatment of peptic ulcer. Recently, a new anticholinergic drug, banthine® (beta-diethylaminoethyl xanthene-9-carboxylate methobromide), has been made available to the medical profession for this purpose. The drug is apparently a valuable adjunct to the therapy of peptic ulcer. Only too often in the past has a new therapeutic remedy been enthusiastically received and then as energetically rejected. On the basis of my personal experience with a fairly large series of ulcer patients, I wish to outline the following suggestions regarding the use of banthine.®

1. The amount advocated by Grimson seems too large for most patients. My co-workers and I have found 50 mg., instead of 100 mg., given orally, sufficient. Admittedly, a small percentage of patients tolerate the larger dose.

2. To prevent meal-induced vagal activity, the drug should be given before meals rather than every six hours, although another dose on retiring and one during the night is approved.

3. Since our studies of ulcer patients in the Gastro-Intestinal Clinic of Mount Sinai Hospital have not shown any constant inhibitory effect of 100 mg. of banthine® on gastric secretion, we advocate the concomitant use of alkalis.

4. Except for investigational purposes, we do not consider it fair either to the patient or to the drug to permit an ulcer patient to be treated with banthine® alone without regard to tissue aggression factors, such as an irritating diet, tobacco and alcohol.

5. Occasionally patients with severe nocturnal pains are not relieved by banthine® but do respond to my continuous intragastric drip therapy.

6. Males with present or impending prostatism should not be given the drug. Pyloric obstruction also seems to be a contraindication. A small percentage of patients complain of general malaise and weakness (sympathetic factors?) and cannot tolerate the drug.

7. The complete loss of symptoms in most patients with uncomplicated peptic ulcer is immediate and gratifying. In my experience no other drug previously used has given such excellent symptomatic results in such a large percentage of patients. It is probable, although this requires further study, that the beneficial effects result either from decreased motor activities or from some degree of sympathetic block.

In our experience, patients may become symptomless and the ulcer heal or not. It is, therefore, imperative that while the patients are being treated with this drug they have repeated radiographic studies. Future studies may reveal that healing occurs when the acid factor is controlled.

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RETIREMENT AT SIXTY-FIVE

To the Editor:—A patient from Waterloo, Iowa, has brought up a point on which I have felt strongly for some time, namely, forced retirement of business executives at the age of 65. I suppose that this practice, which is prevalent in many corporations, has one advantage—it allows earlier promotion of younger men. I am also sure that many men who reach the age of 65 are no longer fit to carry on their duties. I am sure, however, that you will agree with me that one cannot use any age limit as a criterion of when a man is or is not fit to carry on. With the modern advances in medicine, age 65 is no longer considered as old as it used to be. Many men are really in their prime at that age and stay that way for five, 10 or even 20 years more.

It seems to me that a campaign could be started among corporations and in medical schools and other universities to offset previous practices in this regard. In its place, such large institutions might have a committee which would judge as to the fitness of every person as he approaches the age of 65. If the committee decided that a man had all his faculties, he would be kept on in his position as long as he retained those faculties. To avoid possible complaints, this committee should be composed of both older and younger men. As a corollary, such large institutions would do well if they would insist that those approaching the age of 65 should have thorough physical examinations at stated intervals, at least once a year. This would weed out a number who are physically unfit to carry on and would make room for the younger executives.

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USE OF SODIUM CHLORIDE SOLUTION FOR SHOCK

To the Editor:—The letter of Drs. Rosenthal and Tabor (*J. A. M. A.* **144**:413 [Sept. 30] 1950) is timely in its emphasis on the need for simplifying the treatment of shock, especially in its early stage. It is regrettable that there is no reference to the outstanding advocate of the use of isotonic sodium chloride solution in large amounts for shock. Dr. Frederick M. Allen, on the basis of his own work and scattered observations in the literature, was the first to introduce tourniquet shock as a standardized laboratory procedure. He was the first to interpret shock as a mixture of physical and toxic factors (*Arch. Surg.* **38**:155 [Jan.] 1939). He advocated isotonic sodium chloride solution as being equal to and sometimes superior to plasma for shock and burns (*Am. J. Surg.* **61**:79, 1943; **62**:80, 1943). The availability of the solution in practically unlimited quantities should be brought to the attention of those charged with the setting up of disaster centers, especially as these will be staffed largely with lay personnel.

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SEXUAL EFFECTS OF VASECTOMY

To the Editor:—In the July issue of THE JOURNAL there appeared an article by Garrison and Gamble on the effects of vasectomy. I have been interested in the surgical correction of male sterility for the past 30 years and have frequently been confronted with the problems of the patient who has undergone vasectomy; for this reason I feel that some comment on this subject is in order. These authors state that the use of vasectomy has been limited because the average male is apprehensive of a handicap in his sexual life as a result of the procedure. They further state that they performed vasectomy in 23 cases because the couple had "as many children as they wanted or could care for adequately." One patient spoke of a wife "almost crazy with worry." Nineteen other patients were sterilized because of "physical disabilities" of the wife. Kidney disease, diabetes, difficult labor and asthma are mentioned as conditions in the wife which served as an indication for sterilizing the husband. In eight patients the husband was operated on because he had neurosyphilis, diabetes, rheumatism, multiple sclerosis, asthma, blindness or deafness. The authors state that, after an experience of 50 procedures on "unselected mentally normal patients," they found that 47 of the 50 (and, as stated by their husbands, all the wives) were satisfied with the results of the operation.

This subject seems to me to have been dealt with, in this instance, in a rather superficial manner. The surgeon that considers doing a vasectomy for any purpose other than the direct treatment of local disease must know that in practically every state in the Union this operative procedure is considered an illegal one. Furthermore, the patient may sue the surgeon and recover damages under the law, even though he, the patient, has stated under oath that he requested that the operation be done.

The psychic and emotional effects of vasectomy are much greater and more deeply rooted than an analysis of such factors as "effect on libido," "postorgasmal symptoms" and "frequency of intercourse" would indicate. Making a man "safe sexually" has often resulted in marital infidelity, domestic discord, separation and divorce. These experiences are frequent in our records in contrast with those quoted by the authors in their 50 cases.

The average physician may be tempted to recommend vasectomy as the easy and safe way to effect sterilization. The operation is simple, devoid of risk and entails no immediate disability worthy of mention. Such advice should not be given lightly. Most experienced urologists will agree that profound sexual neuroses and imaginative ills often follow vasectomy when it has been performed purely to prevent pregnancy. This is true especially of the private patient and perhaps less so in the clinic patient.

Experienced surgeons will demand more valid indications for male sterilization than those advanced by Garrison and Gamble. In addition, they may wisely insist on neuropsychiatric help in the preoperative appraisal of some of these patients and their problems. I know of no surgical procedure which makes the operator more vulnerable to the complaints of a disgruntled patient than a male "sterilization" that has been done without considered judgment on the part of all concerned.

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The medicolegal aspects of operations to produce sterility were discussed in a statement prepared by the Bureau of Legal Medicine and Legislation and published in THE JOURNAL Nov. 12, 1949, page 810.—ED.

Council on Medical Education and Hospitals

ESTABLISHMENT OF CONFERENCE COMMITTEE ON GRADUATE TRAINING IN SURGERY

By action of the Board of Trustees of the American Medical Association, the Board of Regents of the American College of Surgeons and the American Board of Surgery, a Conference Committee on Graduate Training in Surgery has been established. The purpose of this committee is to formulate uniform standards for residency training in surgery, to sponsor a single inspection service for hospitals offering such training and to approve and publish a list of acceptable residency programs. Lists thus approved by the conference committee will be published in THE JOURNAL and in the *Bulletin of the American College of Surgeons* at periodic intervals. The first of these lists of approved residencies for surgical training appears below.

Hospitals desiring approval of residency training in surgery should make application for inspection on behalf of the Conference Committee on Graduate Training in Surgery to the Secretary of the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

SURGERY

The following services have been approved by the Council, the American Board of Surgery and the American College of Surgeons. Approval for training in hospitals listed in the 1950 Internship and Residency Number (**142**:1204-1211 [April 15]), but not included in this list, will be extended to July 1, 1951, as previously announced. Approval for training in hospitals not listed in the 1950 Internship and Residency Number but included in this list is retroactive to July 1, 1950. Hospitals designated by an asterisk offer approved training in surgery of less than three years' duration, which is integrated with or contributory to a fully approved program.

Name of Hospital	Location	Length of Approved Program, Years
United States Army		
Letterman Army Hospital	San Francisco	4
Fitzsimons Army Hospital	Denver	4
Army Medical Center	Washington, D. C.	4
Brooke Army Medical Center	San Antonio, Texas	4
Gorgas Hospital	Anzon, C. Z.	3
Tripler Army Hospital	Honolulu, T. H.	3
United States Navy		
U. S. Naval Hospital	Oakland, Calif.	4
U. S. Naval Hospital	San Diego, Calif.	4
U. S. Naval Hospital	Great Lakes, Ill.	*
U. S. Naval Hospital	Bethesda, Md.	4
U. S. Naval Hospital	Chelsea, Mass.	4
U. S. Naval Hospital	St. Albans, N. Y.	4
U. S. Naval Hospital	Philadelphia	4
U. S. Public Health Service		
U. S. Marine Hospital	San Francisco	3
U. S. Marine Hospital	New Orleans	3
U. S. Marine Hospital	Baltimore	3
U. S. Marine Hospital	Boston	3
U. S. Marine Hospital	Stapleton, S. I., N. Y.	3
U. S. Marine Hospital	Seattle	3
Federal Security Agency		
Freedmen's Hospital	Washington, D. C.	4
Veterans Administration		
Veterans Admin. Hospital	Tuskegee, Ala.	3
Veterans Admin. Hospital	Long Beach, Calif.	4
Veterans Admin. Hospital	Los Angeles	4
Veterans Admin. Hospital	San Francisco	4
Veterans Admin. Hospital	Fort Logan, Colo.	4
Veterans Admin. Hospital	Newington, Conn.	4
Veterans Admin. Hospital	Washington, D. C.	4
Veterans Admin. Hospital	Coral Gables, Fla.	3
Veterans Admin. Hospital	Chamblee, Ga.	3
Veterans Admin. Hospital	Hines, Ill.	4
Veterans Admin. Hospital	Indianapolis	4
Veterans Admin. Hospital	Des Moines	4
Veterans Admin. Hospital	Wadsworth, Kan.	3
Veterans Admin. Hospital	Wichita, Kan.	3
Veterans Admin. Hospital	Louisville, Ky.	4
Veterans Admin. Hospital	New Orleans	4
Veterans Admin. Hospital	Fort Howard, Md.	4
Veterans Admin. Hospital	Perry Point, Md.	4
Veterans Admin. Hospital (West Roxbury)	Boston	4

SURGERY—Continued

Name of Hospital	Location	Length of Approved Program, Years
Veterans Administration—Continued		
Veterans Admin. Hospital	Framingham, Mass.	4
Veterans Admin. Hospital	Dearborn, Mich.	4
Veterans Admin. Hospital	Minneapolis	4
Veterans Admin. Hospital	Jefferson Barracks, Mo.	4
Veterans Admin. Hospital	Lincoln, Neb.	3
Veterans Admin. Hospital	Albuquerque, N. M.	3
Veterans Admin. Hospital	Buffalo	3
Veterans Admin. Hospital	New York City	4
Veterans Admin. Hospital	Staten Island, N. Y.	4
Veterans Admin. Hospital	Cleveland	4
Veterans Admin. Hospital	Dayton, Ohio	4
Veterans Admin. Hospital	Oklahoma City	4
Veterans Admin. Hospital	Portland, Ore.	4
Veterans Admin. Hospital	Aspinwall, Pa.	4
Veterans Admin. Hospital	Columbia, S. C.	4
Veterans Admin. Hospital	Memphis, Tenn.	4
Veterans Admin. Hospital	Nashville, Tenn.	4
Veterans Admin. Hospital	Dallas, Texas	4
Veterans Admin. Hospital	Houston, Texas	4
Veterans Admin. Hospital	McKinney, Texas	4
Veterans Admin. Hospital	Salt Lake City	4
Veterans Admin. Hospital	White River Jct., Vt.	4
Veterans Admin. Hospital	Richmond, Va.	4
Veterans Admin. Hospital	Martinsburg, W. Va.	3
Veterans Admin. Hospital	Milwaukee	4
Nonfederal		
Carraway Methodist Hospital	Birmingham, Ala.	3
Jefferson-Hillman Hospital	Birmingham, Ala.	4
Lloyd Noland Hospital	Fairfield, Ala.	4
University Hospital	Little Rock, Ark.	4
Herrick Memorial Hospital	Berkeley, Calif.	3
San Joaquin General Hospital	French Camp, Calif.	3
General Hospital of Fresno County	Fresno, Calif.	3
California Hospital	Los Angeles	3
Cedars of Lebanon Hospital	Los Angeles	3
Hospital of the Good Samaritan	Los Angeles	3
Los Angeles County Hospital	Los Angeles	4
Queen of Angels Hospital	Los Angeles	3
St. Vincent's Hospital	Los Angeles	3
White Memorial Hospital	Los Angeles	3
Highland-Alameda County Hospital	Oakland, Calif.	3
Peralta Hospital	Oakland, Calif.	*
Permanente Foundation Hospital	Oakland, Calif.	4
Samuel Merritt Hospital	Oakland, Calif.	*
San Bernardino County Charity Hosp.	San Bernardino, Calif.	3
Mercy Hospital	San Diego, Calif.	3
San Diego County General Hospital	San Diego, Calif.	3
Franklin Hospital	San Francisco	4
French Hospital	San Francisco	*
Mount Zion Hospital	San Francisco	4
St. Joseph's Hospital	San Francisco	3
St. Mary's Hospital	San Francisco	3
San Francisco Hospital	San Francisco	4
Southern Pacific General Hospital	San Francisco	3
Stanford University Hospital	San Francisco	4
University of California Hospital	San Francisco	4
Santa Barbara Cottage Hospital	Santa Barbara, Calif.	3
Los Angeles County Harbor General Hospital	Torrance, Calif.	3
Mercy Hospital	Denver	3
Presbyterian Hospital	Denver	3
St. Anthony Hospital	Denver	3
St. Joseph's Hospital	Denver	3
St. Luke's Hospital	Denver	3
University of Colorado Medical Center Colorado General Hospital	Denver	4
Denver General Hospital	Denver	4
Corwin Hospital	Pueblo, Colo.	3
Bridgeport Hospital	Bridgeport, Conn.	3
Hartford Hospital	Hartford, Conn.	4
St. Francis Hospital	Hartford, Conn.	3
New Britain General Hospital	New Britain, Conn.	3
Grace-New Haven Community Hospital Grace Unit	New Haven, Conn.	3
New Haven Unit (University Service)	New Haven, Conn.	4
Hospital of St. Raphael	New Haven, Conn.	3
Waterbury Hospital	Waterbury, Conn.	3
Delaware Hospital	Wilmington, Del.	4
Memorial Hospital	Wilmington, Del.	3
Central Dispensary and Emergency Hospital	Washington, D. C.	4
Gallinger Municipal Hospital	Washington, D. C.	4
Garfield Memorial Hospital	Washington, D. C.	3
Georgetown University Hospital	Washington, D. C.	4
George Washington University Hosp.	Washington, D. C.	4
Providence Hospital	Washington, D. C.	4
Duval Medical Center	Jacksonville, Fla.	3
St. Vincent's Hospital	Jacksonville, Fla.	3
Jackson Memorial Hospital	Miami, Fla.	3
Crawford W. Long Memorial Hospital	Atlanta, Ga.	3
Grady Memorial Hospital	Atlanta, Ga.	4
Piedmont Hospital	Atlanta, Ga.	3
University Hospital	Augusta, Ga.	3
Emory University Hospital	Emory University, Ga.	3
American Hospital	Chicago	3
Augustana Hospital	Chicago	4
Chicago Memorial Hospital	Chicago	3
Children's Memorial Hospital	Chicago	*
Cook County Hospital	Chicago	4
Grant Hospital	Chicago	3
Illinois Masonic Hospital	Chicago	3
Lutheran Deaconess Home and Hosp.	Chicago	3
Mercy Hospital-Loyola Univ. Clinics	Chicago	4

SURGERY—Continued

Name of Hospital	Location	Length of Approved Program, Years
Nonfederal—Continued		
Michael Reese Hospital	Chicago	4
Mount Sinai Hospital	Chicago	3
Passavant Memorial Hospital	Chicago	4
Presbyterian Hospital	Chicago	4
Provident Hospital	Chicago	3
Research and Educational Hospitals	Chicago	4
St. Elizabeth Hospital	Chicago	3
St. Joseph Hospital	Chicago	3
St. Luke's Hospital	Chicago	4
St. Mary of Nazareth Hospital	Chicago	3
University of Chicago Clinics	Chicago	4
Wesley Memorial Hospital	Chicago	4
Evanston Hospital	Evanston, Ill.	4
St. Francis Hospital	Evanston, Ill.	3
West Suburban Hospital	Oak Park, Ill.	3
St. Francis Hospital	Peoria, Ill.	*
Clinic Hospital	Bluffton, Ind.	3
Indianapolis General Hospital	Indianapolis	3
Indiana University Medical Center	Indianapolis	4
Methodist Hospital	Indianapolis	3
St. Vincent's Hospital	Indianapolis	3
St. Elizabeth's Hospital	Lafayette, Ind.	3
Iowa Methodist Hospital	Des Moines	3
University Hospital	Iowa City	4
St. Margaret's Hospital	Kansas City, Kan.	3
University of Kansas Medical Center	Kansas City, Kan.	4
Wesley Hospital	Wichita, Kan.	3
St. Joseph's Hospital	Lexington, Ky.	3
Louisville General Hospital	Louisville, Ky.	4
Norton Memorial Infirmary	Louisville, Ky.	*
St. Joseph Infirmary	Louisville, Ky.	4
Charity Hospital of Louisiana	New Orleans	4
Ochsner Foundation Hospital	New Orleans	3
Southern Baptist Hospital	New Orleans	3
Touro Infirmary	New Orleans	3
Shreveport Charity Hospital	Shreveport, La.	3
Maine General Hospital	Portland, Maine	3
Baltimore City Hospitals	Baltimore	4
Church Home and Hospital	Baltimore	3
Franklin Square Hospital	Baltimore	4
Johns Hopkins Hospital	Baltimore	4
Lutheran Hospital	Baltimore	3
Maryland General Hospital	Baltimore	3
Mercy Hospital	Baltimore	4
Provident Hospital and Free Disp.	Baltimore	3
St. Agnes Hospital	Baltimore	3
St. Joseph's Hospital	Baltimore	3
Sinai Hospital	Baltimore	4
South Baltimore General Hospital	Baltimore	3
Union Memorial Hospital	Baltimore	4
University Hospital	Baltimore	4
Beverly Hospital	Beverly, Mass.	3
Beth Israel Hospital	Boston	4
Boston City Hospital	Boston	3
Carney Hospital	Boston	3
Children's Hospital	Boston	3
Massachusetts General Hospital	Boston	4
Massachusetts Memorial Hospitals	Boston	4
New England Center Hospital	Boston	4
New England Hospital for Women and Children	Boston	3
Peter Bent Brigham Hospital	Boston	4
St. Elizabeth's Hospital	Boston	3
Mount Auburn Hospital	Cambridge, Mass.	3
Truesdale Hospital	Fall River, Mass.	*
Newton-Wellesley Hospital	Newton, Mass.	3
Salem Hospital	Salem, Mass.	*
Springfield Hospital	Springfield, Mass.	3
Pondville Hospital	Walpole, Mass.	*
Memorial Hospitals	Worcester, Mass.	3
St. Vincent Hospital	Worcester, Mass.	4
Worcester City Hospital	Worcester, Mass.	3
St. Joseph's Mercy Hospital	Ann Arbor, Mich.	3
University Hospital	Ann Arbor, Mich.	4
Leila Y. Post Montgomery Hospital	Battle Creek, Mich.	3
Alexander Blain Hospital	Detroit	3
Charles Godwin Jennings Hospital	Detroit	3
City of Detroit Receiving Hospital	Detroit	3
Evangelical Deaconess Hospital	Detroit	3
Grace Hospital	Detroit	4
Harper Hospital	Detroit	4
Henry Ford Hospital	Detroit	4
Mount Carmel Mercy Hospital	Detroit	3
Providence Hospital	Detroit	3
St. Joseph's Mercy Hospital	Detroit	3
Wayne County General Hospital and Infirmary	Eloise, Mich.	3
Hurley Hospital	Flint, Mich.	3
Blodgett Memorial Hospital	Grand Rapids, Mich.	3
Butterworth Hospital	Grand Rapids, Mich.	4
St. Mary's Hospital	Grand Rapids, Mich.	3
Highland Park General Hospital	Highland Park, Mich.	3
Bronson Methodist Hospital	Kalamazoo, Mich.	3
Pontiac General Hospital	Pontiac, Mich.	3
Saginaw General Hospital	Saginaw, Mich.	3
Minneapolis General Hospital	Minneapolis	3
Northwestern Hospital	Minneapolis	*
St. Barnabas Hospital	Minneapolis	3
University of Minnesota Hospitals	Minneapolis	4
Mayo Foundation	Rochester, Minn.	3
Ancker Hospital	St. Paul, Minn.	4
Charles T. Miller Hospital	St. Paul, Minn.	3
Lutheran Hospital	Vicksburg, Miss.	3
Mercy Hospital-Street Memorial	Vicksburg, Miss.	3

SURGERY—Continued

Name of Hospital	Location	Length of Approved Program, Years
Nonfederal—Continued		
Kansas City General Hospital No. 1	Kansas City, Mo.	3
Research Hospital	Kansas City, Mo.	3
St. Joseph Hospital	Kansas City, Mo.	3
St. Luke's Hospital	Kansas City, Mo.	3
Barnes Hospital	St. Louis	4
DePaul Hospital	St. Louis	3
Homer G. Phillips Hospital	St. Louis	4
Jewish Hospital	St. Louis	3
Missouri Pacific Hospital	St. Louis	3
St. John's Hospital	St. Louis	3
St. Louis Children's Hospital	St. Louis	*
St. Louis City Hospital	St. Louis	4
St. Mary's Group of Hospitals	St. Louis	4
Bishop Clarkson Memorial Hospital	Omaha, Neb.	*
Creighton Memorial St. Joseph's Hosp.	Omaha, Neb.	3
University of Nebraska Hospital	Omaha, Neb.	3
Mary Hitchcock Hospital	Hanover, N. H.	*
Atlantic City Hospital	Atlantic City, N. J.	3
Cooper Hospital	Camden, N. J.	3
West Jersey Hospital	Camden, N. J.	3
Jersey City Hospital	Jersey City, N. J.	3
Burlington County Hospital	Mount Holly, N. J.	3
Hospital of St. Barnabas and for Women and Children	Newark, N. J.	3
Newark Beth Israel Hospital	Newark, N. J.	3
Paterson General Hospital	Paterson, N. J.	3
Albany Hospital	Albany, N. Y.	4
Binghamton City Hospital	Binghamton, N. Y.	3
Beth-El Hospital	Brooklyn	3
Brooklyn Cancer Institute	Brooklyn	*
Brooklyn Hospital	Brooklyn	3
Coney Island Hospital	Brooklyn	3
Cumberland Hospital	Brooklyn	4
Greenpoint Hospital	Brooklyn	3
Jewish Hospital	Brooklyn	4
Kings County Hospital	Brooklyn	4
Long Island College Hospital	Brooklyn	4
Maimonides Hospital	Brooklyn	8
Methodist Hospital	Brooklyn	3
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn	3
St. Catherine's Hospital	Brooklyn	3
St. John's Episcopal Hospital	Brooklyn	3
St. Mary's Hospital	Brooklyn	3
Wyckoff Heights Hospital	Brooklyn	3
Buffalo General Hospital	Buffalo	4
Deaconess Hospital	Buffalo	3
Edward J. Meyer Memorial Hospital	Buffalo	4
Millard Fillmore Hospital	Buffalo	3
Sisters of Charity Hospital	Buffalo	3
Clifton Springs Sanitarium and Clinic	Clifton Springs, N. Y.	3
Mary Imogene Bassett Hospital	Cooperstown, N. Y.	3
Flushing Hospital and Dispensary	Flushing, N. Y.	3
Meadowbrook Hospital	Hempstead, N. Y.	4
Jamaica Hospital	Jamaica, N. Y.	3
Mary Immaculate Hospital	Jamaica, N. Y.	3
Queens General Hospital	Jamaica, N. Y.	4
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.	3
Nassau Hospital	Mineola, N. Y.	4
Mount Vernon Hospital	Mount Vernon, N. Y.	3
New Rochelle Hospital	New Rochelle, N. Y.	3
Bellevue Hospital		
Div. I—Columbia University	New York City	3
Div. II—Cornell University	New York City	4
Div. III—New York University	New York City	4
Div. IV—Open Division	New York City	4
Beth Israel Hospital	New York City	3
Bronx Hospital	New York City	3
Flower and Fifth Avenue Hospital	New York City	4
Fordham Hospital	New York City	3
French Hospital	New York City	3
Goldwater Memorial Hospital	New York City	4
Harlem Hospital	New York City	4
Knickerbocker Hospital	New York City	3
Lenox Hill Hospital	New York City	3
Lincoln Hospital	New York City	3
Memorial Hospital	New York City	3
Metropolitan Hospital	New York City	4
Montefiore Hospital for Chronic Diseases	New York City	3
Morrisania City Hospital	New York City	3
Mount Sinai Hospital	New York City	4
New York City Hospital	New York City	3
New York Hospital	New York City	4
New York Polyclinic Medical School and Hospital	New York City	3
Presbyterian Hospital	New York City	4
Roosevelt Hospital	New York City	4
St. Clare's Hospital	New York City	3
St. Luke's Hospital	New York City	4
St. Vincent's Hospital	New York City	4
University Hospital	New York City	4
United Hospital	Port Chester, N. Y.	*
Genesee Hospital	Rochester, N. Y.	4
Highland Hospital	Rochester, N. Y.	3
Rochester General Hospital	Rochester, N. Y.	3
St. Mary's Hospital	Rochester, N. Y.	3
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.	4
Ellis Hospital	Schenectady, N. Y.	3
Hospital of the Good Shepherd	Syracuse, N. Y.	3
Grasslands Hospital	Valhalla, N. Y.	3
Charlotte Memorial Hospital	Charlotte, N. C.	3
Duke Hospital	Durham, N. C.	4
Lincoln Hospital	Durham, N. C.	3

SURGERY—Continued

Name of Hospital	Location	Length of Approved Program, Years
Nonfederal—Continued		
Watts Hospital	Durham, N. C.	3
North Carolina Baptist Hospital	Winston-Salem, N. C.	4
Children's Hospital	Akron, Ohio	*
City Hospital	Akron, Ohio	4
Peoples Hospital	Akron, Ohio	4
Aultman Hospital	Canton, Ohio	3
Mercy Hospital	Canton, Ohio	4
Children's Hospital	Cincinnati	*
Christ Hospital	Cincinnati	3
Cincinnati General Hospital	Cincinnati	4
Good Samaritan Hospital	Cincinnati	3
Jewish Hospital	Cincinnati	3
St. Mary's Hospital	Cincinnati	3
City Hospital	Cleveland	4
Cleveland Clinic Hospital	Cleveland	3
Lutheran Hospital	Cleveland	4
Mount Sinai Hospital	Cleveland	4
St. Alexis Hospital	Cleveland	3
St. John's Hospital	Cleveland	4
St. Luke's Hospital	Cleveland	4
St. Vincent Charity Hospital	Cleveland	3
University Hospitals	Cleveland	4
Mount Carmel Hospital	Columbus, Ohio	3
Ohio State University Hospital	Columbus, Ohio	4
St. Francis Hospital	Columbus, Ohio	*
White Cross Hospital	Columbus, Ohio	3
Miami Valley Hospital	Dayton, Ohio	3
Huron Road Hospital	East Cleveland, Ohio	3
Lakewood Hospital	Lakewood, Ohio	3
St. Rita's Hospital	Lima, Ohio	3
Maumee Valley Hospital	Toledo, Ohio	3
Mercy Hospital	Toledo, Ohio	3
St. Vincent's Hospital	Toledo, Ohio	3
Toledo Hospital	Toledo, Ohio	3
St. Elizabeth's Hospital	Youngstown, Ohio	4
Youngstown Hospital	Youngstown, Ohio	4
St. Anthony Hospital	Oklahoma City	3
University Hospitals	Oklahoma City	3
Hillcrest Memorial Hospital	Tulsa, Okla.	3
Emanuel Hospital	Portland, Ore.	3
St. Vincent's Hospital	Portland, Ore.	3
University of Oregon Medical School Hospitals and Clinics	Portland, Ore.	4
Abington Memorial Hospital	Abington, Pa.	3
Allentown Hospital	Allentown, Pa.	3
Sacred Heart Hospital	Allentown, Pa.	3
St. Luke's Hospital	Bethlehem, Pa.	3
Bradford Hospital	Bradford, Pa.	*
Bryn Mawr Hospital	Bryn Mawr, Pa.	3
George F. Geisinger Memorial Hospital	Danville, Pa.	3
Easton Hospital	Easton, Pa.	*
Hamot Hospital	Erie, Pa.	3
St. Vincent's Hospital	Erie, Pa.	3
Harrisburg Polyclinic Hospital	Harrisburg, Pa.	4
St. Joseph's Hospital	Lancaster, Pa.	3
Children's Hospital	Philadelphia	*
Episcopal Hospital	Philadelphia	3
Germantown Dispensary and Hospital	Philadelphia	4
Graduate Hospital of the Univ. of Pennsylvania	Philadelphia	3
Hahnemann Hospital	Philadelphia	4
Hospital of the University of Pennsylvania	Philadelphia	4
Jefferson Medical College Hospital	Philadelphia	4
Jewish Hospital	Philadelphia	3
Lankenau Hospital	Philadelphia	4
Methodist Episcopal Hospital	Philadelphia	3
Mount Sinai Hospital	Philadelphia	3
Pennsylvania Hospital	Philadelphia	4
Philadelphia General Hospital	Philadelphia	3
Presbyterian Hospital	Philadelphia	3
Temple University Hospital	Philadelphia	3
Woman's Hospital	Philadelphia	3
Children's Hospital	Pittsburgh	*
Mercy Hospital	Pittsburgh	3
Montefiore Hospital	Pittsburgh	3
Pittsburgh Hospital	Pittsburgh	3
Pittsburgh Medical Center-Presbyterian Hospital	Pittsburgh	3
St. Francis Hospital	Pittsburgh	3
Western Pennsylvania Hospital	Pittsburgh	4
Reading Hospital	Reading, Pa.	3
St. Joseph's Hospital	Reading, Pa.	3
Robert Packer Hospital	Sayre, Pa.	4
Williamsport Hospital	Williamsport, Pa.	3
York Hospital	York, Pa.	3
Rhode Island Hospital	Providence, R. I.	3
Roper Hospital	Charleston, S. C.	4
Baroness Erlanger Hospital	Chattanooga, Tenn.	3
Knoxville General Hospital	Knoxville, Tenn.	3
Baptist Memorial Hospital	Memphis, Tenn.	4
John Gaston Hospital	Memphis, Tenn.	4
Methodist Hospital	Memphis, Tenn.	3
St. Joseph Hospital	Memphis, Tenn.	3
Geo. W. Hubbard Hospital of Meharry Medical College	Nashville, Tenn.	3
Nashville General Hospital	Nashville, Tenn.	3
St. Thomas Hospital	Nashville, Tenn.	4
Vanderbilt University Hospital	Nashville, Tenn.	4
Baylor University Hospital	Dallas, Texas	3
Gaston Hospital	Dallas, Texas	*
Parkland Hospital	Dallas, Texas	4
Univ. of Texas Medical Branch Hosp. John Sealy Hospital	Galveston, Texas	4
Hermann Hospital	Houston, Texas	3
Jefferson Davis Hospital	Houston, Texas	4
M. D. Anderson Hospital for Cancer Research	Houston, Texas	*
Methodist Hospital	Houston, Texas	*
St. Joseph Infirmary	Houston, Texas	3
Scott and White Hospital	Temple, Texas	3
Wichita Falls Clinic Hospital	Wichita Falls, Texas	3
Dr. W. H. Groves Latter-Day Saints Hospital	Salt Lake City	3
Holy Cross Hospital	Salt Lake City	*
St. Mark's Hospital	Salt Lake City	3
Salt Lake County General Hospital	Salt Lake City	4
Mary Fletcher Hospital	Burlington, Vt.	3
Alexandria Hospital	Alexandria, Va.	3
University of Virginia Hospital	Charlottesville, Va.	4
Chesapeake and Ohio Hospital	Clifton Forge, Va.	3
Norfolk General Hospital	Norfolk, Va.	4
Medical College of Virginia Hospital Division	Richmond, Va.	4
Jefferson Hospital	Roanoke, Va.	3
Lewis-Gale Hospital	Roanoke, Va.	*
King County Hospital Unit No. 1 (Harborview)	Seattle	4
Virginia Mason Hospital	Seattle	3
Beckley Hospital	Beckley, W. Va.	3
Charleston General Hospital	Charleston, W. Va.	3
Chesapeake and Ohio Hospital	Huntington, W. Va.	*
St. Mary's Hospital	Huntington, W. Va.	3
Laird Memorial Hospital	Montgomery, W. Va.	3
St. Joseph's Hospital	Parkersburg, W. Va.	3
Myers Clinic Hospital	Philippi, W. Va.	3
Madison General Hospital	Madison, Wis.	3
State of Wisconsin General Hospital	Madison, Wis.	3
Columbia Hospital	Milwaukee	3
Milwaukee Children's Hospital	Milwaukee	*
Milwaukee County Hospital	Milwaukee	3
Milwaukee Hospital	Milwaukee	3
St. Joseph's Hospital	Milwaukee	3
Queen's Hospital	Honolulu, Hawaii	3
San Juan City Hospital	San Juan, Puerto Rico	3

The following services are approved by the Council as offering satisfactory training of one or two years' duration, in preparation for residency training in the surgical specialties (Surgical Residencies, *J. A. M. A.* **142**:1216 [April 15] 1950).

Name of Hospital	Location
U. S. Public Health Service	
U. S. Marine Hospital	Detroit
U. S. Marine Hospital	Cleveland
Federal Security Agency	
St. Elizabeths Hospital	Washington, D. C.
Nonfederal	
City Hospital	Mobile, Ala.
St. Joseph's Hospital	Phoenix, Ariz.
Tucson Medical Center	Tucson, Ariz.
Arkansas Baptist Hospital	Little Rock, Ark.
St. Vincent Infirmary	Little Rock, Ark.
Glendale Sanitarium and Hospital	Glendale, Calif.
Scalkie Memorial Hospital	Long Beach, Calif.
Santa Fe Coast Lines Hospital	Los Angeles
Collis P. and Howard Huntington Memorial Hospital	Pasadena, Calif.
Children's Hospital	San Francisco
Mary's Help Hospital	San Francisco
St. Luke's Hospital	San Francisco
Santa Clara County Hospital	San Jose, Calif.
Community Hospital of San Mateo	San Mateo, Calif.
St. John's Hospital	Santa Monica, Calif.
Children's Hospital	Denver
Colorado State Hospital	Pueblo, Colo.
Lawrence and Memorial Associated Hospitals	New London, Conn.
Norwalk Hospital	Norwalk, Conn.
St. Mary's Hospital	Waterbury, Conn.
Doctors Hospital	Washington, D. C.
Sibley Memorial Hospital	Washington, D. C.
Riverside Hospital	Jacksonville, Fla.
St. Luke's Hospital	Jacksonville, Fla.
Orange Memorial Hospital	Orlando, Fla.
Georgia Baptist Hospital	Atlanta, Ga.
St. Joseph's Infirmary	Atlanta, Ga.
Henrotin Hospital	Chicago
Hospital of St. Anthony de Padua	Chicago
Illinois Central Hospital	Chicago
Loretto Hospital	Chicago
Norwegian-American Hospital	Chicago
Ravenswood Hospital	Chicago
St. Anne's Hospital	Chicago
Women's and Children's Hospital	Chicago
Woodlawn Hospital	Chicago
Little Company of Mary Hospital	Evergreen Park, Ill.
Methodist Hospital of Central Illinois	Peoria, Ill.
Ball Memorial Hospital	Muncie, Ind.
St. Francis Hospital	Wichita, Kan.
Good Samaritan Hospital	Lexington, Ky.
Hotel Dieu, Sisters' Hospital	New Orleans
Bon Secours Hospital	Baltimore
Suburban Hospital	Bethesda, Md.
Lahey Clinic	Boston

SURGERY—Continued

Name of Hospital	Location
Nonfederal—Continued	
Cambridge City Hospital	Cambridge, Mass.
Lynn Hospital	Lynn, Mass.
Malden Hospital	Malden, Mass.
Quincy City Hospital	Quincy, Mass.
Detroit Memorial Hospital	Detroit
Woman's Hospital	Detroit
Asbury Hospital	Minneapolis
Lutheran Deaconess Home and Hospital	Minneapolis
Swedish Hospital	Minneapolis
St. Louis County Hospital	Clayton, Mo.
Ellis Fischel State Cancer Hospital	Columbia, Mo.
Menorah Hospital	Kansas City, Mo.
St. Mary's Hospital	Kansas City, Mo.
Missouri Methodist Hospital	St. Joseph, Mo.
St. Anthony's Hospital	St. Louis
Missouri Baptist Hospital	St. Louis
St. Luke's Hospital	St. Louis
Montana Deaconess Hospital	Great Falls, Mont.
Hackensack Hospital	Hackensack, N. J.
Monmouth Memorial Hospital	Long Branch, N. J.
Mountainside Hospital	Montclair, N. J.
Fitkin Memorial Hospital	Neptune, N. J.
Presbyterian Hospital	Newark, N. J.
Muhlenberg Hospital	Plainfield, N. J.
Mercer Hospital	Trenton, N. J.
St. Francis Hospital	Trenton, N. J.
Children's Hospital	Buffalo, N. Y.
Mary McClellan Hospital	Cambridge, N. Y.
Gouverneur Hospital	New York City
Hospital for Special Surgery	New York City
Lebanon Hospital	New York City
Mother Cabrini Hospital	New York City
New York Infirmary	New York City
Sydenham Hospital	New York City
White Plains Hospital	White Plains, N. Y.
James Walker Memorial Hospital	Wilmington, N. C.
City Memorial Hospital	Winston-Salem, N. C.
Kate Bitting Reynolds Memorial Hospital	Winston-Salem, N. C.
Bismarck Hospital	Bismarck, N. D.
St. Luke's Hospital	Fargo, N. D.
Trinity Hospital	Minot, N. D.
St. Thomas Hospital	Akron, Ohio
Deaconess Hospital	Cincinnati
Fairview Park Hospital	Cleveland
Doctors Hospital	Cleveland Heights, Ohio
St. Elizabeth Hospital	Dayton, Ohio
Mercy Hospital	Hamilton, Ohio
Wesley Hospital	Oklahoma City
St. John's Hospital	Tulsa, Okla.
Providence Hospital	Portland, Ore.
Harrisburg Hospital	Harrisburg, Pa.
Hazelton State Hospital	Hazelton, Pa.
Doctors Hospital	Philadelphia
Frankford Hospital	Philadelphia
Hospital of the Woman's Medical College of Pennsylvania	Philadelphia
Misericordia Hospital	Philadelphia
St. Joseph's Hospital	Philadelphia
St. Mary's Hospital	Philadelphia
Allegheny General Hospital	Pittsburgh
Washington Hospital	Washington, Pa.
Mercy Hospital	Wilkes-Barre, Pa.
Wilkes-Barre General Hospital	Wilkes-Barre, Pa.
Columbia Hospital	Wilkinsburg, Pa.
Columbia Hospital	Columbia, S. C.
Mid-State Baptist Hospital	Nashville, Tenn.
Brackenridge Hospital	Austin, Texas
Methodist Hospital	Dallas, Texas
St. Paul's Hospital	Dallas, Texas
Harris Hospital	Fort Worth, Texas
Southern Pacific Hospital	Houston, Texas
Thomas D. Dee Memorial Hospital	Ogden, Utah
Bishop DeGoesbriand Hospital	Burlington, Vt.
Arlington Hospital	Arlington, Va.
Elizabeth Buxton Hospital	Newport News, Va.
Riverside Hospital	Newport News, Va.
DePaul Hospital	Norfolk, Va.
St. Elizabeth Hospital	Richmond, Va.
Doctors Hospital	Seattle
Providence Hospital	Seattle
Swedish Hospital	Seattle
St. Luke's Hospital	Spokane, Wash.
Kanawha Valley Hospital	Charleston, W. Va.
LaCrosse Lutheran Hospital	LaCrosse, Wis.
Methodist Hospital	Madison, Wis.
Evangelical Deaconess Hospital	Milwaukee
Mount Sinai Hospital	Milwaukee
St. Luke's Hospital	Milwaukee
St. Mary's Hospital	Milwaukee

INTERNSHIPS AND RESIDENCIES

The following internship and residency training programs have been approved since the publication of the list of Approved Residencies and Fellowships in THE JOURNAL, April 15, 1950. A number of hospitals not included in this list have recently been surveyed by representatives of the Council and have been recommended for residency approval. These hospitals will be notified as soon as final action on their applications has been completed. A list of these services will appear in the Hospital Number of THE JOURNAL.

ADDITIONAL INTERNSHIPS APPROVED

Name of Hospital	Location
United States Army	
Army and Navy General Hospital	Hot Springs, Ark.
United States Navy	
U. S. Naval Hospital	Oceanside, Calif.
Veterans Administration	
Veterans Admin. Hospital	Long Beach, Calif.
Veterans Admin. Hospital	Houston, Texas
Nonfederal	
J. J. McCook Memorial Hospital	Hartford, Conn.
Columbus City Hospital	Columbus, Ga.
Alexian Brothers Hospital	Chicago, Ill.
Walther Memorial Hospital	Chicago, Ill.
New England Center Hospital	Boston, Mass.
Prospect Heights Hospital	Brooklyn, N. Y.
Northern Westchester Hospital	Mount Kisco, N. Y.
Mercy Hospital	Charlotte, N. C.

ADDITIONAL RESIDENCIES APPROVED

Allergy	
Johns Hopkins Hospital	Baltimore
Milwaukee County Hospital	Milwaukee
Anesthesiology	
Veterans Admin. Hospital	Lincoln, Neb.
New England Center Hospital	Boston
Contagious Diseases	
Camden Municipal Hospital	Camden, N. J.
Dermatology and Syphilology	
Veterans Admin. Hospital	Milwaukee
Gastroenterology	
Letterman Army Hospital	San Francisco
Veterans Admin. Hospital	Richmond, Va.
Temple University Hospital	Philadelphia
General Practice	
Methodist Hospital of Southern California	Los Angeles
Mercy Hospital	Muskegon, Mich.
Benedictine Hospital	Kingston, N. Y.
Bradford Hospital	Bradford, Pa.
Madison Rural Hospital and Sanitarium	Madison College, Tenn.
Internal Medicine	
Presbyterian Hospital-Olmsted Memorial	Los Angeles
Community Hospital of San Mateo County	San Mateo, Calif.
Wyckoff Heights Hospital	Brooklyn
Malignant Diseases	
Presbyterian Hospital-Olmsted Memorial	Los Angeles
Neurological Surgery	
Beth Israel Hospital	New York City
Obstetrics and Gynecology	
St. Luke's Hospital	Milwaukee
Ophthalmology	
U. S. Marine Hospital	Staten Island, N. Y.
Veterans Admin. Hospital	Brooklyn
Eye and Ear Hospital of Los Angeles	Los Angeles
Jewish Hospital	Brooklyn
Syracuse Medical Center	Syracuse, N. Y.
Orthopedic Surgery	
Sea View Hospital	Staten Island, N. Y.
Pathology	
St. Luke's Hospital	New Bedford, Mass.
Pediatrics	
Mary Immaculate Hospital	Jamaica, N. Y.
Good Samaritan Hospital	Cincinnati
Physical Medicine and Rehabilitation	
Research and Educational Hospitals	Chicago
Psychiatry	
University of Louisville Services Louisville General Hospital Norton Memorial Infirmary	Louisville, Ky.
Northampton State Hospital	Northampton, Mass.
Pulmonary Diseases	
Norwich State Hospital	Norwich, Conn.
Radiology	
Veterans Admin. Hospital	Indianapolis
Jackson Memorial Hospital	Miami, Fla.
Protestant Deaconess Hospital	Evansville, Ind.
Cambridge City Hospital	Cambridge, Mass.
Lynn Hospital	Lynn, Mass.
Harlem Hospital	New York City
Genesee Hospital	Rochester, N. Y.
St. Joseph's Hospital	Reading, Pa.
St. Joseph's Hospital	Milwaukee
Thoracic Surgery	
Veterans Admin. Hospital	Jefferson Barracks, Mo.

Medical Motion Pictures

Laboratory Diagnosis of Tuberculosis. Parts I, II and IV: 16 mm., black and white, sound. Produced in 1949 by and procurable on loan from United States Public Health Service, Communicable Disease Center, 605 Volunteer Building, Atlanta 3.

The purpose of this series of motion pictures is to aid in teaching the preparation of the Lowenstein-Jensen-Holm egg-potato flour medium for diagnostic cultivation of tubercle bacilli. Recent publicity has focused attention on the importance of roentgenograms of the chest as a means of diagnosing pulmonary tuberculosis. It should be pointed out that this method, though helpful as a screening procedure, is not the final criterion of specific diagnosis of tuberculosis. The finding of tubercle bacilli is the only sure proof.

These films give the complete story of all the steps needed for specific bacteriologic identification of the tubercle bacillus.

Part I: Preparation of a Culture Medium. Showing time 14 minutes.

This film presents in great detail the preparation of the Lowenstein-Jensen-Holm egg-potato flour medium which is generally accepted as one of the most satisfactory for this purpose, because it can be easily prepared even in a small laboratory, it inhibits growth of contaminating bacteria, it supports growth of all three strains of tubercle bacilli (human, bovine and avian) and it permits preliminary identification of each strain by colony appearance.

Part II: Preparation of Sputum Specimens. Showing time 16 minutes.

This section gives the step by step technic of preparation of the sputum specimen for cultivation. Exact strain identification is extremely important for prognostic purposes.

Part III is still in production.

Part IV: Typing of Tubercle Bacilli by Animal Inoculation.

This film illustrates the technic of animal inoculation and eventually of the autopsy and the interpretation of the observations for the purpose of strain determination. It is commendable that emphasis is placed on sources of error. A broken test tube is used as an illustration of possible danger, and the importance of sanitary precautions is clearly shown. The bacteriologic technic is excellent and will impress the attentive observer. The technics are simple, easy to follow and require no elaborate instruments.

Only a color film can bring out certain features that will of necessity be missed in a black and white film. For example, the fine details of the postmortem observations in the animals are not very clear in part IV. With this one exception this series of pictures is a good illustration that black and white films can still be used to great advantage. This series is well organized for teaching and is highly recommended for teaching of bacteriologists, medical students, public health laboratory technicians and students of medical technology. Clinical pathologists and teachers of bacteriologic technic will find this production most useful and interesting. The photography and narration are excellent.

Intra Oral and Pharyngeal Structure and Their Movements. 16 mm., color, sound, showing time 18 minutes. Produced in 1950 by the Veterans Administration, Department of Medicine and Surgery. Procurable on loan from Chief, Medical Illustration Division, Research and Education Service, Veterans Administration, Washington, D. C.

This film shows the physiological activity of the tongue, soft palate and epiglottis in a patient who suffered the loss of a portion of the face as a result of a cancer arising in the maxillary sinuses. The heroic cooperation of the subject and the ingenuity of those who fitted him with an artificial, transparent palate as well as other unusual devices enable the film to show the activities of these structures during the acts of mastication, swallowing, speaking and smoking.

Parts of the narration are not clear, particularly the reference to the supposed role of the frenum in limiting the rotation of the tongue and the reference to a "network" of glands. It is to be hoped that the authors will have an opportunity to make further photographs of this subject, who is making such a valuable contribution to medical science.

The film will be most informative and inspiring to medical students, especially in the course devoted to physiology of mastication and deglutition. For teaching purposes, it would be desirable to abbreviate the long section devoted to mastication and swallowing. It will also be important to otorhinolaryngologists and oral surgeons. Given a more systematic treatment of the subject of speech, the film could have been made more valuable to the specialist in the subject of speech rehabilitation. The teaching value of the film would have been enhanced by the addition of animated sequences of some of the action illustrated. The photography is excellent.

Human Beginnings. 16 mm., sound, color, 760 feet, showing time 21 minutes. Produced in 1950 by Eddie Albert Productions, Hollywood, Calif. Directed by Lester F. Beck, Department of Psychology, University of Oregon and photographed with children of the Walt Whitman School, New York City. Procurable on rental from Association Films, Inc., 35 West 45th Street, New York 19. For sale only to educational organizations under license.

The first half of the film portrays a class of 6 year old boys and girls discussing how they think a baby grows. The children illustrate their own ideas with simple clay models and drawings. Some of these reflect hostility and fear. After about 10 minutes of running time, there is a subtitled pause in the picture that would permit discussion of the classroom scenes already viewed by an audience of children or adults. In the second part of the film, one child tells about his baby sister and the story moves into this child's home. The mother and father explain about the new baby and how it will be born. Later the mother and new baby are shown at the hospital, with details of how the baby is cared for and how it nurses at the mother's breast. After the mother and baby come home, the social adjustment of the child to the baby is illustrated. The second half of the film is well done, effectively illustrating the well intentioned parents' efforts to properly brief the child about the birth of the baby, to bring about acceptance of the new arrival and later to develop a feeling of security for the older child through participation in the activities related to its care.

This film was reviewed by a group of health educators and a psychiatrist. Their reaction to the picture was totally different. Therefore, it was decided to publish both points of view.

The psychiatrist commented as follows: A generation ago, criticisms of this film would almost certainly have been raised on the grounds that, although it is expressly intended for showing to groups of all ages, the questions it explores should not be raised with "tender" or "impressionable" children. Today, fortunately, such strictures would trouble only those parents or teachers who have remained blind to the disturbing misconceptions and trepidations children develop when they are not properly instructed and prepared for this important event in their lives. The film has minor technical defects of voice recording in its early sequences, whereas its second section cannot, of course, explore all ramifications of the important parent-child interactions with which it deals. Nevertheless, the film is perhaps the best audiovisual medium to date for introducing the subject of children's attitudes toward childbirth for supervised classroom discussion, Parent-Teachers Association meetings or psychological study groups.

The health educators stated: Unfortunately there is serious question about the merit of the first part of the film. From a technical standpoint, the discussion of the children in its early phases is difficult to understand. While the material presented does demonstrate the innermost feelings of the children concerned, it not only points up misconceptions about birth but portrays feelings on the part of some of the children which border on the traumatic. Seeing the distorted attitudes in the first half of the film could be an unhealthy educational experience for children whose attitudes are wholesome and undeveloped. From this standpoint, it is not recommended as a film for young children. On the other hand, it is an excellent film for parents, child study and teacher education groups. The photography is excellent, however the direct recording in the classroom is poor.

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

20:801-900 (Sept.) 1950

Accurate Method for Glucose Determination. J. L. Pope.—p. 801.
Flame Photometer in Determination of Sodium and Potassium. E. C. Froehl and W. P. Nelson.—p. 806.
The Testis, Breast and Prostate of Men Who Die of Cirrhosis of Liver. H. S. Bennet, A. H. Baggenstoss and H. R. Butt.—p. 814.
Reaction to Accidentally Injected Rubber Plugs. T. B. Magath and J. T. McClellan.—p. 829.
Rapid Titrimetric Method for Determination of Blood-Sugar. F. Rapaport and E. Eichhorn.—p. 834.
Sternal Route in Measuring Blood Volume. C. Reich and L. Howard. —p. 837.
Effect of Folic Acid Antagonist, 4-Amino-Pteroylaspartic Acid, in Treatment of Polycythemia Rubra Vera. E. C. Bell and P. L. Davis. —p. 839.
*Persistent Truncus Arteriosus: Clinicopathologic Study. V. Moragues. —p. 842.

20:901-1000 (Oct.) 1950

The Van Den Bergh Reaction. N. W. Elton.—p. 901.
Clinical and Pathologic Effects of Space-Occupying Lesions of Bone Marrow. A. V. Pisciotta.—p. 915.
Multiple Myeloma: Lesions of Extra-Osseous Hematopoietic System. J. Churg and A. J. Gordon.—p. 934.
Consideration of Phenomenon of "Sludged Blood" in Disease. R. H. Rigdon.—p. 946.
Lesions Resembling Boeck's Sarcoid in Lymph Nodes Draining Area Containing Malignant Neoplasm. E. M. Nadel and L. V. Ackerman. —p. 952.
Comparative Study of Vaginal Smears and Cervical Cell Scrapings in Intra-Epithelial Carcinomas. D. D. Kulcsar.—p. 958.
Electrophoretic Studies in Gaucher's Disease. A. R. Goldfarb, D. H. Atlas and P. Gaberman.—p. 963.

Persistent Truncus Arteriosus.—The truncus arteriosus, according to Moragues, is the most cephalic portion of the cardiac tube in the early embryologic development. The partitioning of the truncus into aorta and pulmonary trunk begins in the aortic sac. This division progresses through the truncus toward the ventricle. If this process is not completed, a partial type of truncus arteriosus communis persistens results. If there is no separation of the truncus, a complete type of truncus arteriosus communis persistens results, in which the pulmonary arteries arise directly and independently from the common arterial truncus, above the heart. The criteria for anatomic identification are that: (1) only one large arterial trunk be present at the base of the heart, (2) the arterial trunk must combine the features and functions of both the aorta and the pulmonary artery, on the one hand giving off the coronary and systemic arteries and on the other supplying blood to the lungs, (3) there is always an interventricular septal defect and (4) the trunk is usually in the position of the rider aorta. The author presents four cases of persistent truncus arteriosus with postmortem studies. Three instances were of the partial and one was of the complete type. Of the 37 instances of this malformation so far reported, 30 were in patients under one year of age. Patients with persistent truncus arteriosus usually have a systolic murmur and a thrill at the base of the heart, because of the ventricular septal defect. The pulse pressure may be high, and the clinical picture may simulate that of a persistent ductus arteriosus. The degree of cyanosis varies from case to case and frequently shows intermittent accentuation; it is greater when the subject is lying down. In roentgenologic examination, the anteroposterior plate usually shows enlargement of the cardiac outline, especially to the left. The pulmonary conus is absent, and the aortic knob may be prominent. Taussig claims that in persistent truncus arteriosus the cardiac outline in the left anterior oblique view is diagnostic, showing a sharp projection forward (shelf) of the upper border of the right ventricle. The author does not agree, since in two of his cases he did not find such a diagnostic silhouette. Besides, almost identical outlines have been seen in cases of tetralogy of Fallot.

American Journal of Hygiene, Baltimore

52:133-250 (Sept.) 1950. **Partial Index**

Comparative Oviposition Experiments with Caged Mosquitoes. J. de Zulueta.—p. 183.
Studies on Destruction of Bacterial Virus. S. L. Chang, F. Condie and M. Graham.—p. 184.
Observations on Serological Epidemiology; Antibodies to the Lansing Strain of Poliomyelitis Virus in Sera from Alaskan Eskimos. J. R. Paul and J. R. Riordan.—p. 202.
Passive Transfer of Immunity to Lansing Poliomyelitis Virus from Actively Immunized Mothers to Young Mice. R. Thompson and F. P. Meyers.—p. 213.
*A Disease Epidemic in Iceland Simulating Poliomyelitis. B. Sigurdsson, J. Sigurjonsson, J. H. Sigurdsson, J. Thorkelsson and K. R. Gudmundsson.—p. 222.
Studies on Type-Specific Immunization with Somatic Antigens of Corynebacterium Diphtheriae. M. Frobisher, Jr and E. I. Parsons.—p. 239.

Epidemic in Iceland Simulating Poliomyelitis.—Sigurdsson and his associates describe an epidemic that occurred in an Iceland community with about 7,000 inhabitants during the late fall and winter of 1948-1949. The first cases were given diagnoses of poliomyelitis. The epidemic reached its peak in the last week of November and lasted until the middle of February. The number of cases reported was 465, a case incidence of 6.7 per cent. Paresis was observed in 129 cases, but there were no deaths. The disease appeared to spread through personal contact, and cases were particularly frequent in the schools. The case incidence was highest by far in the age group of 15 to 19 years, was also high among adults, but was relatively low among children under 5 years of age. The disease was characterized by a low fever, which sometimes persisted for weeks, accompanied with a dull pain in one or more limbs, with or without such pain in the neck and back. Muscle tenderness, often confined to small areas, was also a prominent symptom. Paresis of one or more muscle groups, irregularly distributed, developed in about 28 per cent of the cases. The aches often persisted long after the disappearance of all objective symptoms. Sensibility disturbances were not infrequent, and complaints of nervous instability and irritability persisted for months in some cases. Symptoms of arthritis followed the infection in several instances. Four samples of feces were tested for poliomyelitis virus with negative results. Similarly, tests for the Coxsackie type of virus on baby mice were negative. Complement fixation tests of convalescent serums with antigens specific for several virus encephalitides also gave negative results. The fact that poliomyelitis virus or Coxsackie virus were not isolated in these cases does not exclude the possibility that one or both may have been present in the epidemic. It is possible that a strain of poliomyelitis virus with unusual pathogenic properties and of low virulence was responsible for this epidemic or that some unknown neurotropic virus was present.

American Journal of Medicine, New York

9:277-424 (Sept.) 1950

Dosage Schedules of Penicillin.—Eagle and co-workers studied the factors governing the efficacy of penicillin given in different dosage schedules in a variety of experimental infections. Mice and rabbits were inoculated with Diplococcus pneumoniae types 1 and 3, group A and group B betahemolytic streptococci and Treponema pallidum. Results showed that the curative dosage of aqueous penicillin varies widely, as much as a thousandfold, according to the schedule of its administration. In a given infection, these widely disparate curative doses provide effective concentrations of penicillin for essentially the same aggregate period of time, modified only by the varying effects of the penicillin-free interval between injections. The common denominator of "penicillin time" is suggested as the primary determinant of its therapeutic activity. The rate at which bacteria die under the impact of penicillin in vivo is independent of its absolute concentration, provided only that the latter is in excess of the level which in vitro kills the particular organism at the maximal rate. Large doses of penicillin are more effective than smaller doses, primarily because of the longer time during which they provide that effective concentration. A penicillin-free interval between injections modifies the therapeutic activity of the drug in two respects. For a variable period of time after the penicillin has fallen to ineffective levels, the body may continue to dispose of bacteria damaged but not yet killed by the drug in some cases. The body thus contributes to the therapeutic action of the drug by reducing the time for which penicillin itself need act on the bacteria. Eventually, the organisms may recover from the toxic effects of the preceding injection and resume multiplication. An unduly long penicillin-free interval between injections therefore necessitates larger doses of penicillin and the provision of effective concentration for a longer aggregate time.

Aureomycin in Rickettsialpox.—Rose and co-workers treated five young adult patients and three children with proved rickettsialpox with aureomycin hydrochloride administered by mouth in doses of from 2 to 4 Gm. daily, with a total dose of from 2.25 to 16 Gm. No toxic side reactions were observed, other than occasional nausea, vomiting and diarrhea, which in one patient was sufficiently severe to require discontinuance of treatment. The temperature was restored to normal within 18 to 24 hours, with complete disappearance of headache and malaise in all patients. The acute febrile stage of rickettsialpox not treated with aureomycin usually lasts about one week, the fever and associated symptoms abating gradually over the final two or three days of the illness. Results of aureomycin therapy suggest that treatment with this antibiotic should be considered whenever the clinical diagnosis of rickettsialpox seems reasonably certain. No specific antibody response was detected by the complement fixation test in three of the eight patients during convalescence. It seems probable that aureomycin suppressed rickettsial multiplication so promptly and completely that the resulting antigenic stimulus was insufficient for detectable antibody production. Since the specific diagnosis of rickettsial disease is usually made in retrospect by serologic test with acute and convalescent phase serums, the use of aureomycin, which interferes with the immune response, may seriously affect the diagnosis by serologic methods and may even render it impossible.

Plasmacytosis and Hyperglobulinemia Due to Sulfadiazine.—Robertson reports two patients, one young woman with acute peritonitis following self-induced abortion and a boy aged 14 with bronchopneumonia, who were treated with sulfadiazine. Clinical and postmortem observations suggested probable hypersensitivity to sulfadiazine in both cases. The boy survived for more than five months after the onset of the symptoms, while the female patient survived for only 19 days. The lesions in both cases consisted of a widespread plasmacytosis, hepatitis and interstitial nephritis. The patient who survived longer had pronounced hyperglobulinemia during life, while serum globulins were increasing in the other patient at the time of death. The boy died of liver failure and the woman of kidney failure. In neither case was the diagnosis of hypersensitivity fully appreciated during life. The blood sulfonamide level of the woman on the day before death was 17.4 mg. per 100 cc., so that ample antigen was present even at this time to stimulate plasmacytosis and hyperglobulinemia as well as nephritis and hepatitis. The chief reason for consideration of plasmacytosis and hyperglobulinemia as a reaction to sulfadiazine in the boy rested on the large experimental evidence in animals that plasmacytosis and hyperglobulinemia are responses to a great variety of antigenic stimuli. Differentiation between plasma cell myeloma and massive plasmacytosis is difficult. A diagnosis of plasmacytosis should be considered when essentially normal cells of the plasmacytic series are observed in moderate numbers along with normal marrow elements in a patient exhibiting anemia and hyperglobulinemia. The author's two cases are the first in which sulfonamide compounds have been indicted as probably responsible for extensive plasmacytosis and hyperglobulinemia in addition to the lesions commonly seen in sulfonamide hypersensitivity.

American Journal of Public Health, New York

40:917-1066 (Aug.) 1950. **Partial Index**

Hazards in Radioactive Static Eliminators.—Silson points out that static electricity is generated in almost any operation where paper, plastic, rubber or some other dielectric is passed at high speed between rollers or other friction-creating surface. Static electricity not only interferes with production but may cause fire or explosions. Many physical means have been used in attempts to deal with the static charge. Probably the commonest is passage of the charged material over grounded metal tinsel or combs. Humidifiers, gas flames and high voltage electrodes have all been used, but each has disadvantages or hazards. The most recent of these methods is the use of radioactive alpha-emitting bars to ionize the air. Two types of bars have been advocated: one containing polonium, which is essentially an alpha emitter, and the other containing radium which, in addition, gives off beta and gamma rays. The former, however, has had a somewhat limited field of usefulness. Radium bars consist of a mounting holding a thin strip of gold foil, which contains a measured quantity of radium. This is covered with several thin layers of plating. Two types of foil have been evaluated in operation, containing respectively 25 and 50 micrograms of radium per linear inch. The use of radium-containing bars requires control of the radiation hazards. Protection against gamma radiation involves the maintenance of a distance between the worker and the source, since shielding is generally impractical because of the great thickness of lead required. Beta radiation, on the other hand, requires a much greater distance but is much more rapidly controlled by shielding. Much of this shielding can be accomplished by the use of a properly designed housing for the source, without appreciable interference with the alpha radiation necessary for the ionization of the atmosphere. No additional precautions are necessary for protection against the alpha rays, except the use of gloves for momentary handling of the bars, as in cleaning them. There is no hazard from radon gas in a normally ventilated workroom and no appreciable adsorption of this gas in the dust and lint which collects

on the bars. Care must be used in locating bars to provide proper distance and shielding for all phases of operation. Film badge monitoring and medical supervision of the workers are advisable as a final check on the adequacy of the control measures.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

34:401-500 (Sept.) 1950

Penicillin and Bismuth Subsalicylate for Syphilis.—In the treatment of primary and secondary syphilis, Pardo-Castello and Pardo used a schedule of 20 doses of crystalline penicillin G. The drug was administered intramuscularly to 91 patients at the rate of 500,000 units daily dissolved in 3 cc. of isotonic sodium chloride solution. Twice a week, 10 to 20 doses of 0.13 Gm. of bismuth subsalicylate were given intramuscularly. All patients were clinically cured at the end of 60 days to two years. Of the 91 patients, 79 are still seronegatives; 11 are still seropositive with falling titer, and one patient returned with a serologic relapse and was retreated. The low rate of failure in this group suggests that penicillin in aqueous solution equals or surpasses penicillin in effectiveness in the several absorptive-delaying menstruums now in use. The authors believe that constant hemoconcentrations of penicillin are not necessary for the effective treatment of syphilis and that absorption-delaying menstruums are not essential. Larger amounts of penicillin administered during a longer time will prove more effective than the smaller quantities in a short time, as now advised in most schedules. The addition of bismuth subsalicylate to any schedule of treatment increases its therapeutic value.

Aureomycin Treatment of Syphilis.—According to Olansky and his collaborators, a study of the use of aureomycin in the treatment of syphilis was instituted in January 1949, at the Rapid Treatment Center, Callinger Municipal Hospital, Washington, D. C. This preliminary report is concerned with 108 patients. The four dosage schedules that were tried consisted first of 30 mg., 60 mg., 120 mg. or 240 mg. per kilogram of body weight per day. Since the disappearance time of organisms from the lesions was almost as short with the lower dosages as with the higher (23 to 30 hours) and since toxic reactions might be expected to be less severe and less frequent with lower doses, schedules of 30 and 60 mg. per kilogram daily were established for the remainder of the patients. The daily dose was divided into six portions and was administered at four-hour intervals. Aureomycin was found therapeutically active in syphilis. Better results were obtained with 60 mg. per kilogram per day for eight days than with the same or smaller doses for shorter periods of time. The two most important observations were that treponemas disappear from surface lesions at a slower rate and that the Jarisch-Herxheimer reaction is milder and less frequent after aureomycin than after penicillin administration. Aureomycin may therefore be most valuable in patients with late syphilis in whom a severe Jarisch-Herxheimer reaction should be avoided. It may also be valuable in the treatment of syphilis of the central nervous system or in cardiovascular syphilis. Allergic reactions to aureomycin were rare, therefore it should prove valuable in patients allergic to penicillin. Avitaminosis may occur either during or after the use of aureomycin. This fact and the high incidence of gastrointestinal symptoms (nausea, vomiting and diarrhea) that occur with aureomycin in the dosage necessary in syphilis constitute the disadvantages.

Aureomycin in Neurosyphilis.—Kierland and O'Leary treated 15 patients with neurosyphilis with orally administered aureomycin. Two patients did not tolerate the antibiotic because of severe gastrointestinal reactions, and one was transferred to a state institution after receiving only 8 Gm. of the drug. The remaining 12 patients were terated with aureomycin in doses of from 50 to 90 Gm. Three of the patients had asymptomatic neurosyphilis, two had meningovascular syphilis, one had tabes dorsalis, one had taboparesis and five had paresis. Aureomycin produces satisfactory clinical results. The majority of patients gained weight; there was an increased sense of well-being, and many minor subjective complaints disappeared. All but one patient with symptomatic neurosyphilis were clinically improved. The disease in the three patients with asymptomatic neurosyphilis showed no signs of progression. The spinal fluid of patients treated with aureomycin showed essentially the same response as that of patients treated with penicillin. The cerebrospinal fluid in 11 of the 12 patients showed steady and rapid diminution in the cell count and values for protein. The patient observed for the longest period achieved a completely normal cerebrospinal fluid. The early results suggest that aureomycin will produce the accumulative and long-standing beneficial results achieved by penicillin alone or penicillin plus fever therapy. The dosage of aureomycin used has varied considerably, but approximately 60 Gm., given in doses of 2 to 4 Gm. daily, seems sufficient for a single or first course of therapy. Reactions involving the gastrointestinal system appeared in approximately 50 per cent of the cases. A reduction of the daily doses often permitted continuation of medication. Aureomycin is indicated for patients with neurosyphilis who have a resistance or hypersensitivity to penicillin.

Am. Practitioner & Digest of Treatment, Philadelphia

1:897-984 (Sept.) 1950

Oral and Pharyngeal Complications of Chloramphenicol Therapy.—Williams directs attention to the oral and pharyngeal complications that arise during the treatment of infections with chloramphenicol. Of 200 patients receiving chloramphenicol, glossitis and black tongue, stomatitis, pharyn-

gitis and infection of the mouth and throat developed in 12 (6 per cent) while they were being treated with the drug. The symptoms in six of these patients were so severe that therapy had to be discontinued. The patients in whom the oral and pharyngeal complications developed either were of the older age group or had chronic disease. Five of the 12 had long-standing gastrointestinal disease. The oral or pharyngeal reactions were most severe in those patients who received other antibiotics in addition to chloramphenicol. Invasion by a yeastlike fungus, Monilia (Candida) albicans, occurred in nine patients after the bacterial flora had been suppressed by chloramphenicol. Administration of supplementary vitamins failed to prevent the development of oral and pharyngeal reactions in three patients with ulcerative colitis. Supplementary vitamins were not given to the remainder of the group with oral complications.

Annals of Internal Medicine, Lancaster, Pa.

33:533-700 (Sept.) 1950

Effects of Dibenamine® on Hypertension.—Wunsch and his associates studied the effect of N,N-dibenzyl-β-chlorethylamine (dibenamine®) on 31 patients with severe hypertension. The drug was administered by slow intravenous drip (45 to 60 min.), in doses of 2 to 10 mg. per kilogram of body weight, to 14 patients, including 10 in the malignant phase of hypertension. Enteric-coated tablets of dibenamine® were given orally to 17 patients in doses of 0.25 to 0.5 gm., one to three times daily. Toxic reactions were experienced by all alert patients. Results of the study showed that given by the intravenous route, this drug is of value in the symptomatic relief of hypertensive encephalopathy, that it is merely an accessory measure to combat an acute episode of hypertensive encephalopathy in the hope that sufficient improvement may be obtained to permit sympathectomy and that because of its toxicity it should be reserved for patients failing to improve on standard medical measures. Dibenamine® given orally was not tolerated in therapeutically effective doses. All doses should be given by slow intravenous infusion over a period of at least one hour, to reduce the danger of severe toxicity. The initial dose should be limited to 2 to 3 mg. per kilogram and, if tolerated, subsequent doses should be increased to the therapeutic range of 5 to 10 mg. per kilogram. Intravenously administered dibenamine is contraindicated in the treatment of the ambulatory hypertensive patient, not only because of its toxicity but also because of the pronounced and prolonged orthostatic hypotension it causes.

Precordial Electrocardiograms Derived from V and CF Leads.—Kistin and Brill report seven cases in which there were clinically significant differences between precordial electrocardiograms recorded in succession, once with the Wilson distant electrode (V leads) and once with the distant electrode on the left leg (CF leads), the precordial electrode remaining in place. Abnormalities occurred in the CF leads; the T waves were inverted in all cases, and in two cases, there were abnormal Q waves, whereas the corresponding V leads were normal. There was no definite evidence of heart disease in any of the cases, although there were questionable symptoms or signs in some. It was concluded that the CF leads gave false indications of cardiac disease, while the normal V leads were more consistent with the cardiac status. The discrepancies were due to high potentials at the left leg compared to the potentials at the precordium and at the Wilson electrode. Such potentials may occur in the absence of heart disease and may be related to alterations in the position of the heart and its relation to adjacent structures.

Annals of Surgery, Philadelphia

132:321-576 (Sept.) 1950

Liver Injury and Repair.—Ravdin and Vars believe that the reduction in functional capacity of the liver, which at times occurs following anesthesia and operation, is due in large part to anoxia. Failure of an adequate oxygen supply is the chief cause of this anoxia during anesthesia. During an operation anoxia may result from any condition that impedes blood flow to the liver, even when the circulating blood is well oxygenated, or from a reduced blood flow, as in shock. In a patient with suspected acute or chronic liver injury, the prevention of hepatic anoxia during and after operation is of major importance to recovery. A diet adequate in total calories and in composition will partially protect the liver from a wide variety of noxious agents and will facilitate repair of the liver damaged by these agents. It will even facilitate repair in the presence of recurrent cholangiohepatitis. The importance of an adequate intake of protein and of an optimal number of calories in the preoperative period, therefore, takes on a new significance, for repair can be begun and functional capacity improved before the patient is subjected to the assault of anesthesia and operation.

Postoperative Salt Retention and Adrenal Cortical Function.—Johnson and his collaborators direct attention to the temporary disturbances in the electrolyte and protein metabolism that occur in the period immediately following a major surgical operation. They used the electrolyte concentrations of serially obtained samples of sweat as an index of changes in the activity of salt-active adrenal steroids. Sweat tests and eosinophil counts were made of 12 men and two women before

and after such operations as gastric resection, cholecystectomy, herniorrhaphy, splenectomy, closure of colostomy and varicose vein ligation. All subjects were in good nutritional state, and most received at least 5 Gm. of sodium chloride per day orally or parenterally during the postoperative period. The results of the sweat analyses are shown in diagrams. Activities of three main types of adrenocorticosteroids, namely, electroyle-regulating 11-desoxycorticosterone-like steroids, 11-oxysteroids and steroids having activities and end products characteristic of sex hormones are discussed. A major surgical procedure constitutes an "alarming stimulus" resulting in increased production of pituitary adrenocorticotropic hormone with a resultant increase of adrenal cortical activity during the first five to nine days after operation. Studies of the changes in the composition of thermal sweat before operation and periodically after operation indicate that in the immediate postoperative period there is increased activity of those adrenal steroids that cause retention of sodium, chloride and water. It is concluded that increased production by the adrenals of desoxycorticosterone-like steroids accounts, at least in part, for salt retention and the accompanying potassium diuresis after operation.

Arch. Indust. Hygiene and Occupat. Med., Chicago

2:245-364 (Sept.) 1950

SYMPOSIUM ON PREPAYMENT HEALTH PLANS FOR INDUSTRIAL WORKERS

Arizona Medicine, Phoenix

7:1-80 (Sept.) 1950

Bulletin of Johns Hopkins Hospital, Baltimore

87:255-348 (Oct.) 1950

Circulation, New York

2:321-480 (Sept.) 1950

Effect of Visammin on Coronary Artery Insufficiency.—According to Best and Coe, visammin (khellin) is a crystalline substance isolated from the seeds of the plant Ammi visnaga, which grows abundantly in the eastern Mediterranean region and which has been used for centuries in the treatment of conditions characterized by spasm of smooth musculature. The authors report on nine patients with a history of angina pectoris on exertion, for coronary insufficiency as shown by electrocardiogram, but with no evidence of congestive heart failure, hyperthyroidism or anemia and no recent myocardial infarction. The effectiveness of visammin in the treatment of these patients was evaluated electrocardiographically by means of the exercise tolerance test, the anoxemia and the ergonovine test. Coronary insufficiency was shown in results of 14 electrocardiographic tests of nine patients. Results of 10 of these tests reverted to normal with visammin therapy. This beneficial effect was not noted with placebo therapy. Eight of the nine patients noticed an increase in exercise tolerance and a decrease in number and severity of anginal attacks. Nausea and vomiting of moderate severity occurred in three patients during the visammin therapy. Visammin appears to be of value in the treatment of angina pectoris.

Reflexes Modifying Circulation.—Peterson says that during the last several years records have been obtained of intra-arterial pressures in nearly 1,000 persons by direct intra-arterial catheterization and electrocardiography. The records were obtained during anesthesia, operation, clinical disease and physiological and pharmacological experiments. The records demonstrate the occurrence in man of cardiovascular reflex responses that are not generally recognized and are not explainable by existing concepts of reflex effect. The stimulation or alteration of certain reflex areas produces an apparent primary weakening of ventricular contraction (in some cases concurrent with the induction of bradycardia and in others independent of changes in the pacemaker system of the heart) in addition to alterations in stroke volume, cardiac filling and arterial pressure. These changes follow modifications of the reflex systems that are said to mediate their activity on the heart through

the vagus nerves. In addition, the effects are not consistent with the presently accepted response of the sympathetic nervous system. These reflexes modify the manifestation of Starling's law. Spinal anesthesia to a sensory level of the twelfth thoracic segment had abolished the classic response of the pulse rate following changes in stroke volume, cardiac filling and arterial pressure. From this evidence it was concluded either that there are certain fibers from the vagus nerves that enter the ventricles directly and produce an effect of weakened strength of contraction or that sympathetic inhibition occurs far more rapidly and quantitatively in man than has been previously supposed.

Isolation of Hypertensin from Blood of Dogs in Artificial Kidney.—With the aid of the artificial kidney, Kahn and his associates dialyzed out of the circulating blood of animals a vasopressure substance. This substance was recovered from normotensive and hypotensive dogs and from animals with malignant hypertension. The method for concentration of this substance in the dialysate is described. The substance conforms to all the tests for the identification of hypertensin. Intravenous injections of 0.25 to 0.50 cc. of it produce an immediate steep rise in blood pressure, the maximum rise occurring in one minute or less and the return to normal in three minutes or less. The pressor effect of intravenous injections of the dialysate was unaffected by previous injections of cocaine, atropine or piperoxan (benzodioxan 933 F) but was potentiated by a previous injection of tetraethylammonium chloride. The pressor material was found to be water and alcohol soluble and ether insoluble and slowly dialyzable. In the dialysates in which there was a sufficient amount of the pressor material, this substance was found to be destroyed by trypsin, hyptertensinase and by boiling at p_H 12 but not at p_H 1.

Connecticut State Medical Journal, Hartford

14:807-894 (Sept.) 1950

14:895-978 (Oct.) 1950

Diseases of Chest, Chicago

18:185-276 (Sept.) 1950

Georgia Medical Association Journal, Atlanta

39:359-398 (Sept.) 1950

Illinois Medical Journal, Chicago

98:217-268 (Oct.) 1950

Journal of Clinical Investigation, Cincinnati

29:1113-1260 (Sept.) 1950

Dietary Treatment of Hypertension.—Dole and his associates report on six patients with hypertension treated by the rice-fruit diet of Kempner. The patients remained in continuous residence in a metabolic ward while observations were made on the evolution of clinical and metabolic changes. Five patients showed improvement as evidenced by a significant reduction in mean blood pressure, decrease in heart size, improvement in fundi and return to normal of low or inverted electrocardiographic T waves. Restriction of sodium, but not of chloride, appeared to be necessary to obtain the clinical effect. An investigation was made of the sufficiency of the diet for maintenance, as shown by the attainment of steady weight, balance with respect to nitrogen, sodium, potassium and chloride and normal serum electrolyte concentrations. The five patients with normal renal function appeared to reach the equilibrium on this diet or to approach it closely. The sixth, who had impaired kidneys, achieved the first two of the criteria but probably became slowly depleted of body sodium, despite apparent balance, since her serum concentrations were reduced. With the added burden of ammonium chloride administration, she developed severe dehydration and acidosis. Adaptation proceeded slowly in all. Three months were required for attainment of steady weight by the smallest person and a little more than five months were required by the largest. Since the clinical benefit of the diet did not appear to be associated with depletion but, on the contrary, with successful adaptation, it was suggested that the

therapeutic effect is a consequence of the steady adaptive response to limitation of sodium intake. Whether the high incidence of clinical improvement was due to the selection of relatively young persons with uncomplicated hypertension or whether it was due to the detailed supervision of dietary intake or even whether the sheltered environment of a metabolic ward may have contributed to the favorable effect was not investigated. These considerations, although pertinent to the general problem of dietary treatment, are not directly relevant to the association between clinical and metabolic change.

Life Stress and Renal Circulation.—Pfeiffer and his associates studied renal hemodynamics and blood pressure variations in 35 patients. Elevation in both systolic and diastolic blood pressures was induced by discussion of important personal topics having a threatening significance in 13 patients with normal blood pressure and in 22 with hypertension. During the emotionally induced rises in blood pressure, there was a constant fall in effective renal blood flow and a rise in filtration fraction, indicating an increase in the resistance offered by the renal arterioles. The changes in renal blood flow, filtration fraction and vascular resistance were similar in direction in both the hypertensive and normotensive groups, but there was an indication that the decrease in the renal blood flow and filtration fraction was more significant in the hypertensive group. The increase in renal vascular resistance was unequivocally greater in the hypertensive group. Following lumbodorsal sympathectomy and splanchnicectomy, induced elevations in systemic arterial pressure were accompanied with a reversal of the above pattern, i. e., a fall in filtration fraction and a less intense renal vascular constriction. This is interpreted as a failure, in whole or part, of the efferent glomerular arteriole to participate, although the afferent arteriole is still responsive. The concept is advanced that the kidney, under usual conditions, has two more or less independent vascular mechanisms: (*a*) a sympathetic control of the efferent glomerule arteriole and (*b*) an intrinsic or intrarenal humoral control of the afferent glomerular arteriole, possibly involving the juxtaglomerular myoarterial apparatus.

Journal of Lab. and Clinical Medicine, St. Louis

36:167-334 (Aug.) 1950

Journal National Malaria Society, Columbia, S. C.

9:195-284 (Sept.) 1950. **Partial Index**

Journal of Thoracic Surgery, St. Louis

20:335-504 (Sept.) 1950

Pulmonary Paraffinoma (Lipid Pneumonia).—Berg and Burford discuss pulmonary paraffinoma or advanced lipid pneumonia. In the infantile type of lipid pneumonia, alveoli contain oil-filled macrophages and free oil globules. The lesion is usually more extensive than the adult type and is unaccompanied with the late changes of fibrosis and granuloma formation. The adult type of lesion occurs in persons who are habitual users of mineral oil orally, intranasally or intratracheally. Neurogenic and mechanical interference to swallowing may be a factor but is by no means always present. Mineral oil is the causative agent. There may be no pulmonary symptoms or there may be chronic cough with or without sputum, hemoptysis, low-grade fever, frequent lower respiratory infections and dyspnea on exertion. The minimal symptoms presented by the patient are in striking contrast to the gross roentgenologic findings. The authors cite histories of six patients with pulmonary paraffinoma. Clinically, radiographically, at operation and even in frozen section the lesion is often confused with carcinoma. Roentgenologic examination usually reevals circumscribed tumor-like shadows without hilar adenopathy and with peribronchial infiltration, especially in the lower lobes. At operation the lesion may so mimic carcinoma as to result in needless pneumonectomy when lobectomy would have sufficed. The pathological picture of the early type of lipid pneumonia in adults resembles the gray hepatization stage of lobar pneumonia. The paraffinoma consists of one or a group of nodular masses of varying size lying in close proximity to major bronchial trunks. The mass is firm, and the cut surface is mottled yellow to grayish-yellow. Small cavities filled with

oil are seen, and the entire cut surface is oily. When this histologic picture is found and when mineral oil is demonstrated by positive staining with Sudan red and by absence of staining with osmic acid, the lesion can be diagnosed as a paraffinoma.

Surgical Treatment in Pulmonary Coccidioidomycosis.—Cotton and Birsner present observations on 30 patients with pulmonary coccidioidomycosis whom they subjected to surgical treatment. The diagnosis was confirmed in all instances by one or more of the following laboratory signs and methods: spherules in sputum, complement-fixation test, culture, guinea pig inoculation and/or pathological specimen. Twenty-seven of the patients were operated on for cavities and the others for empyema. The following types of operations were done: pneumonectomy in five, lobectomy in 11, segmental lobectomy in eight, wedge resection with decortication in five and decortication plus thoracoplasty in one. Surgical treatment may prevent death and is effective in arresting the disease process. It does not cause dissemination of the disease to the skeletal or nervous system but may prevent dissemination. It is indicated in pulmonary coccidioidomycosis when cavities are of giant size, when the lesions are secondarily infected or blocked or when they have ruptured and caused spontaneous pneumothorax or empyema. Other indications for surgical treatment are nonexpansile lung, hemoptysis, "coccidioma" and failure of medical treatment. Such measures as bed rest, crushing of phrenic nerve, pneumothorax and pneumoperitoneum gave unsatisfactory results. Postsurgical examination of the specimens revealed two causes for the failure of collapse therapy: (1) the cavity, although appearing thin-walled roentgenographically, actually had a dense fibrinous wall; and (2) dense adhesions were present from the cavity wall to the thoracic cage. Lung complications resulting from pulmonary coccidioidomycosis should be evaluated surgically from the standpoint of pathological lesions, without regard to the fungus origin of the disease. Pulmonary cavities due to tuberculosis and coccidioidomycosis do not constitute a contraindication to surgical management.

Kansas Medical Society Journal, Topeka

51:417-456 (Sept.) 1950

Kentucky Medical Journal, Bowling Green

48:399-452 (Sept.) 1950

48:453-498 (Oct.) 1950

Histoplasmosis in Infants.—According to Kotcher and Leikin, histoplasmin sensitivity surveys indicate that Kentucky is in a highly endemic area. They report on seven infants, all of whom were less than 8 months old. The duration of symptoms previous to admission was from two to seven weeks, with an average of 4.3 weeks. The symptoms were fever, irritability, abnormal distention because of hepatosplenomegaly, diarrhea, yellow urine and lethargy. Six of the infants showed signs of upper respiratory infection. All had hepatosplenomegaly. Only one had lymphadenopathy. Six sets of skin tests were done on the parents. Five sets showed both parents to be positive reactors. In the other set the father was positive. Histoplasmin skin tests were done also on four of the patients. The results were negative in one and equivocal in another. Of the other two, one gave a positive reaction on initial examination and the reaction of the other became positive one month after being negative. Histoplasma capsulatum was recovered from the bone marrow in six patients, either on smear or culture or both. The blood revealed the organisms in five patients. The organisms were seen on microscopic examination of the splenic pulp of the patient who had a splenectomy. Roentgen examination of the chest revealed that three patients had infiltration in the lungs, mainly in the hilar regions. All patients were given supportive treatment, including blood transfusions, vitamins and parenteral fluids. All patients received penicillin. A sulfonamide was given to four and aureomycin to two infants. No remedial effect could be ascribed to penicillin or sulfonamide. One of the patients who received aureomycin seemed to improve temporarily. Five patients are known to have died. One patient, who was transferred to Vanderbilt Hospital for further treatment, was known to be living eight months after the onset of symptoms. The eighth patient was taken out of the hospital against the advice of physicians. Anemia, leukopenia, fever and hepatosplenomegaly were the most frequent symptoms. A definite diagnosis can be made on the basis of direct demonstration of the fungus by microscopic examination of stained bone marrow, peripheral blood and tissue impressions of material obtained by biopsy. These materials should also be cultured to recover the tuberculate chlamydospores characteristic of Histoplasma capsulatum.

Laryngoscope, St. Louis

60:849-952 (Sept.) 1950. **Partial Index**

Cause of Certain Types of Tinnitus.—The Fowlers observed that people who have deafness associated with severe tinnitus are usually highly sensitive, tense or nervous. In their experience, sudden deafness and tinnitus occur frequently with severe liver disturbances, with duodenal ulcer and ulcerative colitis. They believe that psychic and neurovascular factors play a part in this combination of symptoms. Formation of "sludges," which are agglutinated masses of erythrocytes, represent one factor. Sludges follow trauma, infectious or toxic diseases. Even a provocative remark may cause a concentration of the smaller vessels, which is often followed by sludging of the blood. The authors studied sludging and found that vessel contraction, sludging and the accompanying phenomena can affect not only the neural elements in the ear but also nonneural tissues. They did not demonstrate incontrovertibly that emotionally induced blood sludge produces tinnitus and deafness, but they feel that there is strong evidence that this may be the case in some patients.

Medicine, Baltimore

29:169-268 (Sept.) 1950

Military Surgeon, Washington, D. C.

107:261-344 (Oct.) 1950

Missouri State Medical Assn. Journal, St. Louis

47:637-716 (Sept.) 1950

New England Journal of Medicine, Boston

243:431-470 (Sept. 21) 1950

Rupture of Interventricular Septum.—Nareff and his associates describe four cases in which interventricular septal defects developed in the course of myocardial infarction. In three of these cases the septal rupture was recognized before death and was corroborated at necropsy. Rupture through the septum often results in a speedy death, although not as quickly as in nonseptal rupture of the myocardium. Perforation of the interventricular septum is usually preceded by a dramatic deterioration in the condition of the patient, although the time of the rupture may not be noticed. There may be pain, and there is usually peripheral circulatory failure and the rather abrupt appearance of, or increase in, the signs of failure of the right side of the heart. There is often associated nausea, vomiting and abdominal tenderness. Cyanosis, dyspnea and tachycardia may suggest pulmonary embolism. When the communication is small, there may be little effect on the cardiovascular dynamics. The most striking clinical feature is the appearance of a typical murmur, which is often loud and harsh. It is systolic in time, is often accompanied by a thrill and is usually located to the left of the lower end of the sternum. The diagnosis of interventricular septal rupture following myocardial infarction can be made when this condition is suggested by the clinical or electrocardiographic findings, or both, or when the presence of the typical harsh systolic murmur over the lower precordium associated with shock and often with right-sided heart failure is noted.

Clinical Study of Toxoids with Aluminum Phosphate.—McComb and Trafton point out that immunizations combining diphtheria and tetanus toxoids with pertussis vaccine formerly had alum or aluminum hydroxide as adjuvants. He reports on the use of a new product in which aluminum phosphate was used as an adjuvant to tetanus toxoid. The diphtheria and tetanus components were purified and concentrated by ammonium sulfate fractionation. The pertussis vaccine was prepared from phase 1 organisms grown on Cohen-Wheeler fluid medium and standardized at 20,000,000,000 organisms per cubic centimeter. This material was furnished to physicians, clinics and institutions who agreed to report the reactions. Efforts were made to obtain bloods one month after the last injection. The antigen was injected intramuscularly in three 0.5 cc. doses four weeks apart. The reactions following these injections as well as 134 "booster" doses were not severe either locally or generally in this group of children. The immunity response to the tetanus component was more than adequate one month after the last dose in all the children tested. As there were no previous tetanus immunizations in these children, the tetanus immunity as shown by postinjection titers should be an accurate index of the immunizing ability of this antigen. Adequate immunity was found in all the bloods tested for diphtheria antitoxin and in 75 per cent of those tested for pertussis immunity as indicated by the agglutination tests. The limitations in interpretation of these two tests are pointed out.

243:471-512 (Sept. 28) 1950

Myasthenia Gravis and Thymoma.—According to Derow and his associates, thymoma occurring in about one sixth of patients with myasthenia gravis is usually encapsulated, grows slowly and is generally regarded as a benign neoplasm. Ten per cent or less of these tumors extend by continuity into the adjacent pleura, lungs, pericardium or the superior vena cava. Separate, discrete, secondary deposits of thymomas, occasionally found at a distance on the pleura, have been interpreted as implants and not as true metastases. Metastases of this nature from thymomas in other organs have not been reported. None of the reported highly malignant, widely metastasizing tumors arising from the thymus have been associated with the symptoms of myasthenia gravis. The authors report a patient with typical symptoms of myasthenia gravis. During the first two and a half years of her five year illness, there was dysphagia and dysarthria related to fatigue, emotional upset or respiratory infection. Five years before her death a mediastinal mass was discovered on roentgen examination and was treated by radiation. The myasthenic symptoms were severer during the last two and a half years, and required oral administration of neostigmine (prostigmine®) bromide. Repeated roentgen examination revealed a mediastinal shadow, interpreted as a tumor at the onset of the illness. There were temporary changes in its size after roentgen irradiation, extension to the apex of the left lung prior to exploratory operation and, shortly before death, the appearance of two new shadows suggestive of metastases in the right lung. Operation and autopsy revealed that one of the shadows in the right lung was a pulmonary infarct. The irradiation did not prevent the spread of the mediastinal tumor and did not improve the myasthenic symptoms. A search of the literature failed to reveal a similar case.

New Jersey Medical Society Journal, Trenton

47:409-452 (Sept.) 1950

North Carolina Medical Journal, Winston-Salem

11:473-544 (Sept.) 1950. **Partial Index**

Genital Smears in Diagnosis of Adenocarcinoma.—According to Cuyler and his associates, smear preparations are far less accurate in the diagnosis of adenocarcinoma of the uterus than in the detection of squamous cell cervical cancer. Their technic of making and staining the smears was that of Papanicolaou and Traut, with slight modifications. An attempt was made to obtain smears on all new patients who came to the obstetric and gynecologic clinics and on all return patients over 30 years of age. Both vaginal and cervical smears were made. During the period 1947-1949, 33,655 genital smears from 10,029 women were studied. According to pathological studies, 434 of these patients had cancers involving the genital tract. In 384 patients the lesion was primary in the uterus. Squamous cell carcinoma of the cervix comprised 83.3 per cent of these lesions or 320 patients. Adenocarcinoma of the uterus was found in 16.4 per cent or 63 patients. Forty-six patients (11.9 per cent) had adenocarcinoma of the endometrium, and 17 patients (3.9 per cent) had adenocarcinoma of the endocervix

or of the cervical stump. There was one adenoacanthoma of the uterus. The percentage of false negative diagnoses for adenocarcinoma of the uterus was 15.9, as compared to 8.4 for squamous cell cervical cancer. Histocytological similarities between hyperplastic endometrium and malignant endometrial lesions may account for errors in interpretation. Metaplasia may be responsible for the confusion of adenocarcinoma of the uterus with squamous cell carcinoma of the cervix. Faulty smears—those composed principally of blood and debris—account for a significant percentage of false negative diagnoses. It is suggested that more effort be made to establish criteria for the recognition of early adenocarcinomas and that the investigators in the field of smear cytology be not content to accept as insurmountable the difficulties of this method of detecting adenocarcinoma.

Transplantation of Parathyroid Gland.—Bland and his associates report a woman aged 40 who had been subject to sporadic tetanic seizures since 1943. She had had a subtotal thyroidectomy in 1941, with relief of symptoms for 18 months. She was subjected in 1943 to further removal of the thyroid tissue for the relief of recurrent hyperthyroidism. She occasionally had a drawing and numb feeling in her hands after the last operation. She was readmitted six weeks later with a complaint of carpopedal spasm and a feeling of drawing in her abdominal wall, feet and legs. Her blood calcium was 5.4 mg. per 100 cc. She was given calcium wafers and vitamin D. During the next five years the patient had tetanic seizures at intervals varying from a few hours to six weeks. She was readmitted to the hospital for regulatory treatment on four occasions. Her teeth had been crumbling and would not hold fillings. Transplantation of parathyroid tissue was advocated. Thyroid and parathyroids were removed from the body of a 29 year old man, who had died on arrival at the hospital. Eight bits of tissue thought to be parathyroid were excised and placed in sterile saline solution at a temperature of 99 F. The woman with hypoparathyroidism had meanwhile been prepared for operation. Eight small beds were formed in the body of the rectus muscle of the woman by blunt dissection, and one bit of parathyroid tissue was placed in each. The postoperative course was uneventful. The patient returned for follow-up examinations nine times during the subsequent four months. She occasionally felt nervous and jittery, and on one occasion felt a drawing sensation in her hands. There was no evidence of hypocalcemia. She continued to take 1 grain (60 mg.) of thyroid extract twice a day. Her appetite was good, and when last seen she was working a full eight hour day without difficulty. The patient appears to have been cured.

Public Health Reports, Washington, D. C.

65:1202-1234 (Sept. 22) 1950

65:1235-1274 (Sept. 29) 1950

65:1275-1314 (Oct. 6) 1950

Tularemia from Rural Water Supply.—Jellison and his co-workers point out that contamination of natural waters in Montana with Pasteurella tularensis has been reported by a number of investigators. Since 1942, repeated contamination of numerous streams, often persisting for months, has been demonstrated at the Rocky Mountain Laboratory. In most instances, the presence of the organism in water has been associated with the occurrence of tularemia in beavers and muskrats inhabiting the streams or ponds concerned. Many cases of tularemia have been contracted by persons who skinned or handled such diseased animals, but there has been little evidence of human infection resulting from direct contact with contaminated water. The occurrence in Gallatin County, Mont., of four cases of tularemia associated with one domestic water supply is the subject of the present report.

Radiology, Syracuse, N. Y.

55:321-476 (Sept.) 1950. **Partial Index**

Irradiation Therapy in Neoplasms of Brain.—Peirce and Bouchard treated with irradiation 243 patients with malignant tumors of the brain and stem. Glioblastoma multiforme, astrocytoma and the unclassifiable malignant gliomas comprised two thirds of the malignant neoplasms of the brain and brain stem. There were 13 instances of fibroblastoma and 32 of pituitary adenoma. Close cooperation between neurosurgeon and radiologist is imperative. Personal daily attention by the radiologist, with treatment according to the clinical status of the patient, is mandatory. The initial daily doses should be relatively small (100 r) and should be given preferably through one port. If no untoward reaction ensues, the daily dose and number of ports may be gradually increased, so that by the tenth day it will usually be possible to administer 150 to 200 r through each of two ports per day, with irradiation of a half-value layer 2 mm. Cu. The survival of patients with glioblastoma multiforme after operation and irradiation was 12 months or more in 47.9 per cent, 15 months or more in 29.1 per cent, 20 months or more in 22.9 per cent and 30 months or more in 8.3 per cent. A minimum tumor dose greater than 7500 r will be required to obtain further improvement. The survival of patients with astrocytoma after operation and irradiation was 12 months or more in 87.8 per cent, 24 months or more in 56.1 per cent, 36 months or more in 43.9 per cent, 48 months or more in 34 per cent, 72 months or more in 24.3 per cent and 96 months or more in 9.7 per cent. A minimum tumor dose of about 9,000 r may afford an additional period of useful life to an increasing number of these patients. The unclassified malignant gliomas appeared to fall in between the two previous types as to degree of malignancy and susceptibility to irradiation. In spite of the malignant character of these neoplasms, irradiation therapy has lengthened survival time and, in not a few cases, useful life. Conservative optimism is still warranted.

Fluorescein in Diagnosis of Brain Tumors.—According to Moore and co-workers, differences between normal and neoplastic brain tissues are accentuated with the use of sodium fluorescein, thus affording the neurosurgeon a better chance of diagnosing and localizing brain tumors. Sodium fluorescein is also of value in studying non-neoplastic lesions of the central nervous system. Attempts to render brain tumors radiopaque by the selective retention of radiopaque compounds were unsuccessful. The use of radioactive diiodofluorescein for the diagnosis and localization of brain tumors proved feasible. Clinical studies revealed inherent weakness in the method, such as the size of tumor that could be detected (tumors less than 3 cm. in diameter were often missed) and the failure of certain tumors to retain a sufficient quantity of dye to make their detection practicable. Detector geometry and shielding proved to be factors in the ultimate accuracy of the analysis as well as in the localization of brain tumors. Studies of the excretion of radioactive diiodofluorescein revealed that most of the dye is excreted in the bile and can be recovered from the feces. In patients with biliary obstruction the dye is excreted wholly in the urine. There is little danger of radioactive iodine (I^{131}) splitting off from radioactive diiodofluorescein.

Review of Gastroenterology, New York

17:723-852 (Sept.) 1950

Ulcerative Colitis.—Lahey reports on 750 patients with ulcerative colitis. Most of these patients were treated medically, and 327 were followed from five to 15 years. Either definite improvement or complete relief was brought about by medical management in two thirds of those with milder forms and in one third of those with the severer forms of the disease. Emergencies arise that cannot be handled medically. Ileostomy can now be done with complete satisfaction. Comparison of mortality in two groups of patients, one of 145 in whom ileostomies were done early in the history of surgical management of ulcerative colitis and one later group of 70, showed a prohibitive mortality of 22.3 per cent in the first group and a mortality under 4 per cent in the second group. The lower mortality in the second group is due to the fact that surgical intervention was not performed on dying patients. Resection of the colon should not be delayed until joint changes occur. Ileostomy should be done before severe intoxication develops. Colectomy should be performed before too much blood is lost by hemorrhage. There is growing evidence that patients with ulcerative colitis from whom the colon is not removed have an increasing percentage of carcinomas. The patient who has undergone ileostomy can live with complete comfort and participate in every activity. Modern ileostomy bags are flat and are so made that they fit accurately, with no skin exposed. There is no skin irritation, and the area need not be skin-grafted.

Surgical Treatment of Duodenal Ulcer.—Crile treated over 400 patients with duodenal ulcers by vagotomy. The first 100 of these patients have now been followed for from one to two years. Bilateral vagotomy plus gastroenterostomy was done in 73 and pyloroplasty in 27 of this group. There was little difference in the end results in these two groups. One patient died in the hospital after the operation. One patient died of unrelated causes six months after the operation. Three patients could not be located within the first year. Of the remaining 59 patients, 35 had transitory or occasional diarrhea and 15 had mild transitory vomiting. Three patients had recurrence of their ulcer-like pain. No appreciable symptoms occured in 82 patients, 10 patients were improved and therapy failed in three. Results obtained in a series of 87 patients treated by vagotomy with gastroenterostomy or pyloroplasty were compared with those obtained in a group of 87 patients treated by gastric resection or gastroenterostomy in the years immediately preceding the advent of vagotomy. The severity of the disease was exactly the same in both groups. Four patients with vagotomy had ulcer-like pain as compared to 16 of the gastric resection groups. The incidence of persistent symptoms of ulcer thus was four times as high in the gastric resection group, and most of these patients were continuing some form of dietary management to control it. One jejunal ulcer developed over a period of three years in the vagotomy group and three in the gastric resection group. Four hemorrhages occurred after gastric resection or gastroenterostomy, and there were no hemorrhages in the other group. No death occurred in 257 consecutive vagatomies with gastroenterostomy or pyloroplasty. This operation, therefore, is relatively safe. It should be reserved for patients with complicated duodenal ulcers. A posterior gastroenterostomy should be performed at the most dependent aspect of the greater curvature to drain the denervated stomach.

South Carolina Medical Assn. Journal, Florence

46:273-304 (Sept.) 1950

Western J. Surg., Obst. & Gynecology, Portland, Ore.

58:451-522 (Sept.) 1950

Clinical Usefulness of Estrogenic Hormones.—Page bases his evaluation of the use of estrogens on personal experience and on the opinions expressed by many medical associates. He discusses routes of administration, choice of preparations, dosage and the physiological actions of estrogens. He admits that his conclusions as to the usefulness of the hormones might be regarded as rather arbitrary, since it is doubtful whether any two physicians would independently arrive at the same conclusions. Nevertheless, he feels that it might stimulate thoughtful discussion to offer a tentative classification of the usefulness of estrogens in practice. For four groups of disorders, estrogens are classified as follows: (1) of proven usefulness, (2) possibly useful or suitable for adjunctive therapy, (3) doubtful indications and (4) of experimental value (judgment reserved). Before estrogen treatment is instituted the following questions should be answered: 1. Is there an indication for an estrogen? 2. Is there a demonstrable deficiency, or is the hormone to be used to inhibit pituitary function, to neutralize an androgenic effect or to utilize its anabolic effect on the skeletal system? 3. Is this the minimal dosage necessary to accomplish the objective, and is the timing correct? 4. Have carcinoma, endometriosis, myomas, a fibroadenoma of the breast or other organic lesions that might be stimulated unfavorably by estrogens been ruled out? 5. Could harmful effects result? Will the treatment produce withdrawal bleeding in a postmenopausal woman, thus substituting a diagnostic problem for a simple therapeutic one? May it interfere with a normal menstrual cycle in such a way as to defeat the objective? Has the patient been prepared for the possible effects of estrogen? 6. Does the severity of the symptoms justify the means? Is this the most economical preparation suitable for the purpose and the most sensible route of administration?

Wisconsin Medical Journal, Madison

49:751-878 (Sept.) 1950

Surgical Treatment of Ulcerative Colitis.—Sullivan believes that many patients with ulcerative colitis require surgical treatment. The time-honored treatment of ileostomy followed by colectomy controls the disease, but this treatment requires two major operations and meticulous attention to detail. Furthermore, few cases have been reported in which bowel continuity was reestablished by ileoproctostomy, because operation was not performed until irreversible changes had been produced. The author performed vagotomy in seven patients with ulcerative colitis and found that this operation was followed by immediate and dramatic improvement in six and slower improvement in one. This new surgical approach to the treatment of ulcerative colitis offers possibilities, and further trial is indicated.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted.
Single case reports and trials of new drugs are usually omitted.

British Journal of Cancer, London

4:147-258 (June) 1950. **Partial Index**

Arsenic Content of Tobacco.—Daff and Kennaway investigated the arsenic content of 15 brands of cigarets and found that the amounts present varied from none to 106 micrograms of arsenic trioxide per gram of tobacco. The concentration of arsenic in cigarets containing the larger amounts varied greatly. This irregularity is probably due to the method by which the arsenic could have been introduced, namely, by the spraying of the plants with insecticides. If the arsenic were absorbed by the roots, one might expect a more uniform distribution. In some areas, only the seedlings are sprayed, and presumably this arsenic is lost in the course of transplantation and further growth. The authors are obtaining data on the use of arsenical solutions in the areas where the tobaccos examined are grown. Of the arsenic volatilized in smoking, a part must escape while the cigaret is not in the smoker's mouth, and a part of what he inspires is expired again, hence the amount retained must be small.

Tumor Production in Thyroid.—Doniach attempted to determine whether radioactive iodine (I^{131}) is carcinogenic to the thyroid gland of the rat. This seemed likely, since radioactive iodine is specifically concentrated in the thyroid, whose cells are thereby submitted to a course of beta ray irradiation. The problem is important, since this iodine is being used in clinical medicine, in both tracer and therapeutic doses. Hyperplasia and adenomas of the thyroid have been produced by goitrogens alone and in combination with the carcinogen acetylaminofluorene. The carcinogenic potency on the thyroid of 32 microcuries of radioactive thyroid was tested in a small series of rats alone, in combination with methylthiouracil, with acetylaminofluorene and with the combined drugs. Radioactive iodine increased the incidence of thyroid adenomas in all groups except those treated with acetylaminofluorene. The adenomas were larger in size as well as in number and showed evidence of malignancy by a gross increase in size and by dissemination outside the thyroid in two instances. The assessment of radiation dosage administered to the thyroid by radioactive iodine is difficult. The percentage of absorption by the thyroid varies with the iodine content of the diet and the surrounding temperature. The authors found it to vary from 10 per cent in hot weather to 30 per cent in cool weather, 24 hours after administration of radioactive iodine. There is a wide variation in concentration from follicle to follicle. The peripheral follicles in the rat take up considerably less iodine than the central follicles. This is only partly balanced by the more rapid disappearance of iodine from the central follicles. The radiation effects are due mostly to beta radiation, since most of the gamma rays, which are much more penetrating, will not be absorbed in the small thyroid of the rat. The human thyroid is 1,000 times heavier than that of the rat, but doses of 10 to 20 millicuries might be regarded as likely to induce adenomas and possibly occasional cancer in the hyperplastic glands. This is just the order of dosage prescribed for the treatment of thyrotoxicosis.

British Journal of Ophthalmology, London

34:517-576 (Sept.) 1950

British Medical Journal, London

2:691-738 (Sept. 23) 1950

Miliary Tuberculosis: Radiological and Pathological Aspects.—Emery and Lorber report a consecutive series of necropsies in which the diagnosis of miliary tuberculosis of the lungs was established in 52 children under 14. When a discrepancy between the radiological and postmortem findings became apparent, it was decided to obtain a wider opinion on the roentgen appearances. The films were referred to a panel of two radiologists and two pediatricians. The assessors were informed that all these deaths were from tuberculosis and were asked to make a radiological diagnosis of the presence, doubtful presence or absence of miliary tuberculosis. Radiographs of the chest taken within 14 days of death were available in all cases. The fundus oculi was examined for choroidal tubercles in 48 children. The roentgenograms of 18, or about one third of the cases, were studied by the panel. Choroidal tubercles were seen in 25 of the 48 cases. Of the 52 cases, 28 were given diagnoses during the life of the patient. The tubercles were more numerous and larger in the 18 roentgen-positive than in the 34 roentgen-negative cases. Choroidal tubercles were present in a significantly higher proportion in the former (15 of 17) than in the latter (10 of 31). Clinical features consistent with miliary tuberculosis and the presence of early choroidal tubercles establish the diagnosis irrespective of the radiological observations. The present methods of diagnosis of miliary tuberculosis are not sufficiently sensitive.

Cardiac Arrest Relieved by Procaine.—Roualle describes a case of cardiac arrest in which complete asystole persisted for 45 minutes despite cardiac massage and injection of epinephrine (adrenalin®). Normal rhythm was restored after two intracardiac injections of procaine hydrochloride, though the patient survived for only four hours. The immediate use of procaine injected into the heart, in preference to or with epinephrine, is suggested. In view of its delayed action, cardiac massage should be performed to prevent interruption in the cerebral circulation.

Journal of Bone and Joint Surgery, London

32B:291-450 (Aug.) 1950

Journal of Mental Science, London

96:619-799 (July) 1950. **Partial Index**

Follow-Up of Prefrontal Leukotomy Cases.—Stengel reports a follow-up study on 330 of 345 patients who were subjected to prefrontal leukotomy between 1942 and 1947. The limitations of leukotomy in the treatment of schizophrenic reaction types of disorder and paranoid states have again been demonstrated in these patients. Full remissions have been observed mainly in patients whose personalities and mental conditions had features that are generally regarded as assets from the point of view of prognosis. There is no general consensus as to whether such patients should be operated on. Retrospectively, it is impossible to judge what would have been the fate of the patients who had a full remission following leukotomy if they had not had the operation. That the remission was related to the operation was clear from the fact that leukotomy was followed by immediate or almost immediate improvement. Leukotomy, therefore, set in motion a process that might have taken place without it. Among the various affective reaction types, the results have been relatively most satisfactory in the involutional group, while in patients with manic periods it has been less favorable. The outcome in patients with purely depressive symptoms, i. e., in the recurrent and involutional depressions, was more favorable than in those with manic periods. The planes of the cuts were varied according to the suggestions of the psychiatrists. In certain cases an anterior cut was aimed at, in others a middle or posterior cut, the latter especially in those cases in which general behavior was gravely disturbed, as in chronic catatonics. However, in view of the anatomic observations in the brains of patients who died some time after leukotomy, an attempt at correlating clinical changes with the location of the cuts aimed at by the surgeon seems futile. The emergence and aggravation of antisocial personality features following leukotomy in patients with affective reaction types of disorder has been found to depend not only on the previous personality, but also on certain features of the mental disorder. Epileptic fits occurred in a higher percentage of male than of female patients. Epileptic fits were observed in a much higher percentage of schizophrenic and paranoid patients than of patients with affective reaction types of disorder.

Lancet, London

2:425-464 (Sept. 30) 1950

Potentiation of Sulfonamide by L Substance.—Bigger and Ware believe that the sensitivity of a bacterium to sulfonamides is grossly underrated when ordinary culture media are used. Treatment of such media by the method of Harper and Cawston increases the apparent sensitivity of the bacterium to sulfonamides, but only to a limited extent. Bacterium coli, which grows well in a simple synthetic medium, is much more sensitive to sulfonamides in a synthetic medium than it is in mediums treated by the method of Harper and Cawston. The authors describe an improved synthetic medium. The action of sulfathiazole on Bact. coli in synthetic medium is bacteriofrenic rather than bacteriostatic or bactericidal. The addition of a small amount (1:20,000) of lemco® (meat extract preparation) to synthetic medium potentiates sulfathiazole so that its action is bactericidal. The substance responsible for the potentiating action of lemco is present in meat extracts, serum, red blood cells, urine and yeast. The provisional name, L substance, has been given to this constituent of lemco.® The L substance, which is basic, has been concentrated and partially purified but not yet identified. Since L substance is present in various body fluids that contain little, if any, sulfonamide antagonizers, it is suggested that, in the living body, the action of sulfonamides is bactericidal rather than bacteriofrenic or bacteriostatic, and that, to explain their therapeutic effect, it is unnecessary to evoke the ordinary defence mechanisms of the body. The L substance differs from the substance in horse erythrocytes that is responsible for the Harper and Cawston effect.

Medical Journal of Australia, Sydney

2:241-276 (Aug. 12) 1950

Poliomyelitis and Tonsillectomy.—According to Dunn, there exist two groups of critics with regard to poliomyelitis and tonsillectomy. One group advises caution and cessation of tonsillectomy during the epidemic period of poliomyelitis. The evidence to support this advice. Quoting chiefly from the American literature, Dunn finds that "we are back where we started." Although a few writers have claimed that the tonsillectomy-poliomyelitis sequence is coincidental, they do not suggest that the operation be performed when the number of cases has reached epidemic proportions. The type of poliomyelitis otolaryngologists suggest that the physicians have insufficient following tonsillectomy is usually bulbar. Numerous cases of bulbar poliomyelitis following tonsillectomy have been reported. If the still undetermined risk of removing tonsils and adenoids during the poliomyelitis season is to be reduced by means other than postponing the operation, there is a need for (1) a practical

method of determining the presence, or absence, of the poliomyelitis virus in the prospective patient and (2) a practical method of obtaining information concerning the incidence of poliomyelitis victims in the vicinity of the prospective tonsillectomy patient's home and school. The risks involved in tonsillectomy during the epidemic season should be considered, together with the other numerous hazards of tonsillectomy and the urgency of indications for the operation.

Practitioner, London

165:107-208 (Aug.) 1950

Medical Aspects of Hair Dyeing.—Thomas points out that until comparatively recently the only dyes available were either natural vegetable colors or metallic salts, sometimes used in combination. Hair dyeing was revolutionized in about 1880 by the discovery of the synthetic organic dyes, paraphenylenediamine and allied chemicals. Hair dyes of the paraphenylenediamine group are potential skin irritants in the class known as sensitizers. They are contact allergens able to create a state of epidermal sensitization, which manifests itself as an eczematous dermatitis in the area of contact. Only a small proportion of those exposed acquire sensitization. An estimate that 4 per cent of the general population have an idiosyncrasy toward this chemical is now regarded as far too high; nevertheless, the dye is a skin sensitizer and is responsible for nearly all cases of hair dye dermatitis, as well as being a cause of occupational dermatitis among hairdressers. A patch test should be carried out before each application of a para dye, whether the dye be used for the whole head or merely for touching up. All reputable hairdressers recognize that this test should be done, but the client may be impatient. Some hairdressers have but a hazy idea of the significance of the skin test and believe that once the hair has been dyed without ill effect the dye can be used thence forward without fear. Allergic sensitization, however, may develop after prolonged periods of use of the dye. Patch tests are by no means infallible and, when negative, are no absolute guarantee against dermatitis. These dyes should not be applied during pregnancy or menstruation or in the presence of eczema or dermatitis on any part of the body. It is also best to avoid them if the general health is below par, when the threshold of skin sensitivity may be temporarily lowered. They must never be applied to the eyebrows or eyelashes.

South African Medical Journal, Cape Town

24:705-724 (Aug. 26) 1950. **Partial Index**

New Treatment of Polyneuritis.—Menof points out that hepatic enlargement and tenderness are commonly encountered in alcoholic and diabetic polyneuritis. Evidence of liver damage is present also when polyneuritis is associated with pellagra, arsenical poisoning and pernicious (Addison's) anemia. Disturbed liver function due to fatty change might be an important factor in the causation of polyneuritis, and if the liver produces or stores a substance necessary for the nutrition of nerve tissue, it is conceivable that this might be diminished in the aforementioned disturbances. Since vitamin B_{12} rapidly counteracts the neurological symptoms of pernicious anemia, Menof administered it to patients with alcoholic or diabetic polyneuritis. The dosage was considerably larger than that recommended for the treatment of pernicious anemia. The author began with 60 micrograms and finally gave as much as 210 micrograms in one injection. The best result was achieved with this large dose. Apart from a little localized tenderness owing to the large size of the intramuscular injection (7 cc.), no untoward effects were experienced either with this or with any other of the doses used. The injection was usually given into the gluteal region. The 11 reported case histories indicate that the results of the treatment were encouraging. The author feels that equally satisfactory results might be obtained in other forms of polyneuritis and in other nervous disorders associated with chronic alcoholism, e. g., delirium tremens, Korsakoff's psychosis, superior hemorrhagic polioencephalitis (Wernicke's encephalopathy) and alcoholic hallucinosis. These conditions might well result from malnutrition adversely affecting the liver. This new therapeutic weapon might also be used in such diseases as progressive muscular atrophy.

Acta Endocrinologica, Copenhagen

4:1-102 (No. 1) 1950. **Partial Index**

Pregnancy and Diabetes Mellitus.—Zilliacus states that among 31,976 deliveries over a 15 year period at the Women's Clinic of Helsingfors University there were 32 pregnancies (26 mothers) that were complicated by diabetes mellitus. The diabetes became worse during the pregnancy in seven instances; an improvement was noted in two, and the pregnancy had no effect on the diabetes in 10. There were signs of toxemia of pregnancy in 13 patients. In two infants with birth weights of 6,450 Gm. and 5,450 Gm., delivery was complicated by the abnormal width of their shoulders. In several infants the weight and height figures at birth were abnormally high. Some women had had abnormally large infants during their prediabetic period. The fetal and neonatal mortality was high, so that only nine of the infants were alive after three months. Although insulin therapy has raised the fertility of diabetic women and has almost completely eliminated the mortality, it has not reduced the high fetal and neonatal death rate. Experiments have revealed that the growth hormone of the anterior pituitary has a diabetogenic effect in experimental animals. This observation suggests that the pituitary may possibly be causative in the abnormally high weight and height figures noted in the fetuses of diabetic women during the prediabetic period and during manifest diabetes.

Klinische Wochenschrift, Heidelberg

28:593-624 (Sept. 15) 1950. **Partial Index**

Ocular Changes in Prognosis of Tuberculous Meningitis.—Heinsius points out that since streptomycin has been used in the treatment of tuberculous meningitis and in miliary tuberculosis, the longer survival of these patients has disclosed a higher incidence of ocular changes. Eye involvement is now observed in 92 per cent of these patients, whereas the percentage formerly varied between 50 and 75 per cent. There is a certain parallelism between the ocular and general changes. Repeated ophthalmologic studies on 98 patients (81 with tuberculous meningitis and 11 with miliary tuberculosis) convinced the author that the ocular changes may even furnish prognostic data. He compares records of ocular changes before and since the streptomycin era. Choked disk was observed formerly in only about 30 per cent of the cases, whereas now it is present in nearly 60 per cent. The prognostic significance of the ocular changes is especially noticeable in stasis symptoms, such as in papillary edema, choked disk and venous stasis. As these symptoms subside, a tendency to improvement in the general condition becomes evident, the temperature decreases and the sensory functions and mental status show improvement. If, on the other

hand, the symptoms of stasis increase, the general condition and sensory activity also become impaired and the temperature usually rises. Optic atrophy usually indicates a fatal termination. Oculomotor paralysis and prolonged pupillary disturbances also indicate a serious condition and an unfavorable prognosis. The appearance of new foci in the choroid are regarded by Walsh as indicative of an unfavorable prognosis, but the author and others regard them as a manifestation of a new hematogenous dissemination, which can be cured by streptomycin therapy. Photophobia and retardation of the pupillary reaction, which may be mistaken for pupillary rigidity and defective convergence, are cited by the author as early symptoms of tuberculous meningitis. In view of the great importance of ocular symptoms in the prognosis of tuberculous meningitis and miliary tuberculosis, whenever streptomycin therapy is employed in these conditions, ophthalmologic control examination should be made once or twice a week.

Insulin Tolerance.—Winkler and Froeschlin made insulin tolerance tests on three groups of students of either the pyknic, leptosomatic or athletic type. They found that in those of the pyknic type the early decrease in blood sugar content is followed by an effective counterruglation, which brings the blood sugar level again to normal or even above it. This again is followed by a decrease. This gives the blood sugar curve a wavelike appearance. Leptosomatic persons also show a rapid decrease in the blood sugar, but the counterregulation is slight. The test curve is characterized by a steep decline and a restless zigzag outline. In persons of the athletic type, the decrease in blood pressure is retarded and the curve is flat, the counterregulation being rather weak. These results indicate that the contrainsular regulation of the blood sugar varies in the different constitutional types. Persons of the pyknic type have a relatively well functioning adrenal system, and their hypophysial counterregulation also is superior to that of the other constitutional types.

Differences in Insulin Shock Dose.—Winkler says since insulin tolerance tests indicated a stronger counterregulation in persons of the pyknic type, it seemed likely that persons of this type would require larger doses of insulin during shock therapy. The first shock treatment is a fairly exact indicator of the insulin tolerance. The first shock dose has been known to vary in extreme cases between 8 and 1,000 units, but usually between 60 and 200 units. Successive shock treatments often require increased doses, but smaller doses may occasionally suffice. On investigating the records of 817 patients who had been given insulin shock treatment and grouping them into constitutional types (312 leptosome, 125 pyknic, 72 athletic and the remainder mixed), the author found that patients of the leptosomic type required much smaller doses of insulin (97 to 110 units) for the induction of shock than did the pyknic types (140 to 170 units) and that the doses for the athletic types were about intermediate between these two. Thus the figures on the insulin shock doses corroborate the results of the insulin tolerance tests.

Medizinische Klinik, Munich

45:1073-1128 (Sept. 1) 1950. **Partial Index**

Penicillin in Treatment of Scarlet Fever.—Lasch reviews observations on 270 scarlet fever patients who were treated between January 1946 and March 1950. The chief aim was to ascertain the efficacy of penicillin therapy. The patients treated during 1946 and 1947 received no penicillin. In 1948 the supply of penicillin was still inadequate, and only patients with severe forms of scarlet fever were treated with it. During the first six months of 1949, alternate patients were treated with penicillin, and after that all patients were given penicillin. In all, 134 patients were treated with penicillin and 136 served as controls. Penicillin therapy transformed scarlet fever into a mild disease. The incidence of suppurating complications, such as otitis, polyarthritis, acute, diffuse glomerulonephritis and septic jaundice was greatly reduced. Myocarditis and nephritis were not prevented, although they were generally mild. The total dose of penicillin was usually from 1,000,000 to 2,000,000 units. Penicillin therapy was occasionally followed by a relapse, suggesting that the development of immunity was inadequate. In spite of these disadvantages, the author feels that penicillin should be given routinely to patients with scarlet fever, because with isolation of the patient and with proper control examinations of pharyngeal smears, these disadvantages can be largely avoided. Penicillin therapy insures rapid clinical cure and prevents serious complications. If complications do develop, they can be controlled with higher dosage. The rapid defervescence and clinical cure quickly makes patients convalescent and reduces the work of the nursing personnel.

Streptomycin Therapy in Vertebral Tuberculosis.—In the 10 cases of vertebral tuberculosis treated by Haizmann and Brändle, there were present extensive gravitation abscesses and profusely discharging fistular openings. The general condition and the appetite were extremely poor. The blood sedimentation rates were greatly accelerated. The temperatures were those characteristic of a septic process. Neither sulfonamide nor penicillin therapy had proved effective. Thoracic vertebrae were involved in five, the lumbar vertebrae in four and the ileosacral joint in one. Streptomycin was given twice daily in individual doses of 250 mg. The daily dose was increased to 1 Gm. in exceptional cases only. The total dose of streptomycin varied between 38 and 86 Gm. The effect of the treatment bordered on the miraculous. In nine of the cases the fistulas closed completely in three months and the secretion had stopped even before that. There was no recurrence after streptomycin therapy was discontinued. The fever subsided, and the sedimentation rate became normal. The weight and the general condition improved. Roentgenoscopy revealed improvement corresponding to the clinical betterment. This report must be regarded as preliminary. Its purpose was to call attention to the life-saving effect of streptomycin, which has never been equalled by any other therapeutic substance.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

94:2445-2516 (Aug. 26) 1950. **Partial Index**

Increased Sensitivity to Opiates and Barbiturates in Anoxia.—Meyler points out that textbooks usually warn against the use of morphine in attacks of bronchial asthma. He cites a man with bronchial asthma in whom administration of a barbiturate and of morphine was followed by deep coma. In a woman with pulmonary edema, morphine injection was followed by respiratory arrest and death. Increased sensitivity to opiates and barbiturates has been observed in patients with anemia, bronchiolitis and kyphoscoliosis. Such increased sensitivity is likely to exist wherever there are disorders which produce oxygen deficiency, accompanied by a depressive effect of an excess of carbon dioxide in the blood on the respiratory center. Nikethamide or other analeptics may counteract the narcotic effect in such cases.

94:2517-2584 (Sept. 2) 1950. **Partial Index**

Pituitary Adrenocorticotropic Hormone and Carbohydrate Metabolism.—According to Overbeek, a number of investigators reported increase in the sugar and ketone contents of blood following administration of pituitary adrenocortico-

tropic hormone. He studied the effect of this hormone on various species of animals, including dogs, rabbits and rats. These experiments and consideration of the action mechanism of pituitary adrenocorticotropic hormone convinced him that the danger of producing real diabetes during treatment with this hormone is slight. However, if a patient has a mild form of diabetes, then there exists the possibility that the diabetes will become severer.

Nordisk Medicin, Stockholm

44:1301-1334 (Aug. 18) 1950. **Partial Index**

Chloramphenicol Therapy in Typhoid.—Gabinus reports that treatment with chloramphenicol gave good results in 12 cases of typhoid. In 11 cases the temperature was normal after three and a half days and in one case after five days. Mild recurrences were seen in five cases. No side effects of the treatment were observed. No patient became a bacillary carrier. To prevent recurrence, the treatment should be continued for about two weeks, with vaccine therapy as soon as possible after the drop in temperature.

44:1335-1378 (Aug. 25) 1950. **Partial Index**

Separation of Upper Femoral Epiphysis.—Sønder and Knudsen followed up 19 patients with separation of the upper femoral epiphysis after an observation period of from three to 26 years; 13 were observed for 10 years or more. The treatment was predominantly conservative, with average duration of a year. No definite relation was demonstrable between subjective results and objective findings. In eight patients, the subjective results were excellent, in seven, satisfactory, and all 15 were fully able to work. Results were poor in 4 patients. The authors do not consider the figures final. Even after a long observation period, the patients were still young, the oldest being 45, and after another 10 years the arthrosis present in the hip of nearly all the patients will probably become more troublesome. Treatment that lasts on an average of one year is unsuitable for young people. There is every reason to seek new ways of treatment of separation of the upper femoral epiphysis. During the last year, active therapy in the form of drilling of the epiphysis or nail fixation has been tried with promising results, but the observation period is not yet long enough for a final evaluation.

Paris Médical

40:333-352 (June 24) 1950

Streptomycin in Addison's Disease.—Guy-Laroche and Tremolieres treated four patients with Addison's disease with streptomycin. One patient, a man aged 47, had Addison's disease of one month's duration, associated with pulmonary tuberculosis with caseating lesions. He had a severe episode of adrenal insufficiency that was resistant to desoxycorticosterone acetate and cortin therapy. The adrenal insufficiency was controlled by daily administration of 1.5 Gm. of streptomycin. The effect of the drug on the pulmonary tuberculosis was highly satisfactory. Follow-up of the patient showed that for more than one year he did not receive desoxycorticosterone acetate but was able to work. The eosinophil count was normal. There was still some hypersensitivity to insulin and a low 17-ketosteroid level (1 mg. per 24 hours). Streptomycin was ineffective in the three patients with mild Addison's disease of one year's duration, without a progressive pulmonary tuberculosis. There was no improvement in the clinical picture, and functional tests remained unchanged. The dosage of desoxycorticosterone acetate and of cortin could not be reduced. Streptomycin caused a mild attack of adrenal insufficiency in one of these three patients, and caused an increase in the nitrogen in the urine of all four patients during the first nine days of treatment. But this loss of nitrogen was of metabolic and not of clinical importance and did not contraindicate the use of streptomycin. These results do not justify streptomycin treatment of Addison's disease in the absence of a progressive tuberculous process. Streptomycin is indicated in cases with progressive tuberculous process, pulmonary or any other, if associated with fever or when such a process is suspected because of increased blood sedimentation rate and hyperglobulinemia.

Estrus-Producing Compounds in Postmenopausal Syndrome Resembling Toxic Diffuse Goiter.—Cachera and co-workers report a woman aged 62 in whom menopause had occurred 13 years previously. For the preceding six months she had had palpitation, dyspnea on exertion, insomnia, thermophobia, loss of weight and edematous exophthalmos. Polydipsia and nocturnal polyuria persisted for several weeks but disappeared spontaneously. The thyroid was normal on roentgenologic examination. Complete recovery resulted within six months from 28 intramuscular injections of 5 mg. of estradiol benzoate followed by three courses of 15 mg. of dienestrol given by mouth daily for 20 days. Studies of extracellular fluids before treatment showed an increase in fluids similar to that observed in the common types of hyperthyroidism. Treatment with massive doses of estrus-producing compounds induced a progressive diminution in the extracellular fluids. Within the first three months of treatment, the amount of these fluids was reduced from 14.250 to 12.180 cc., while the body weight of the patient increased simultaneously by 4.4 Kg. (10 pounds). The extracellular fluids were restored to normal simultaneously with the disappearance of the symptoms of toxic diffuse goiter. The effect of the estrus-producing compounds on the extracellular fluids in the patient was opposite to that exerted by these compounds in normal women. The effect, therefore, was one of suppression of the hyperthyroidism itself.

Policlinico (Pract. Sect.), Rome

57:877-896 (July 3) 1950. **Partial Index**

Blood Donors.—Pulitano and Gaetano report observations on 91 professional blood donors. These belonged to one of the four groups of the AB, A, B or O types and were either Rh positive or Rh negative. They were all voluntary donors in good general health, of normal body weight and with normal arterial tension. Fifty-two donors had been giving blood for several years, and 39 had been giving blood during the last year. The donors were between 30 and 60 years old, with the exception of two men of 65 years. The withdrawal of blood amounted to from 200 to 400 cc. The lapse of time between two consecutive withdrawals was two to three months. The number of blood donations varied between 30 and 207 in the group of long term donors, and between 10 and 29 donations in the recent group. The determinations were made two or three months after the last blood withdrawal. Repeated blood withdrawals did not appear to have unfavorable effects for the donors. Blood donation does not influence the body weight, the general health, arterial blood pressure or the morphology of the blood. In rare instances of donors who had given a large number of blood donations, it was found that either the erythrocytes were smaller than normal, or that there was moderate

hyperglobulia or moderate hypochromic anemia. The proteins in the blood of the long term donors were diminished. The sedimentation rate of the erythrocytes was increased. Blood donors should be given a diet rich in proteins and iron as a preventive measure against anemia.

Revista Clinica de São Paulo

26:71-106 (May-June) 1950. **Partial Index**

Streptococus Sanguis in Subacute Bacterial Endocarditis.—De Carvalho Lima studied strains of streptococci that he had isolated from the blood of two patients with subacute bacterial endocarditis and three control strains that had already been classified as Streptococcus sanguis. They corresponded to the serologic types 1, 2 and 3. Streptococcus sanguis is the type of streptococcus most frequently found in the blood of patients with subacute bacterial endocarditis. This type of bacterial endocarditis can be controlled by large doses of penicillin administered for a considerable period of time. The Streptococcus sanguis can be differentiated from other streptococci of the viridans group by the fact that it grows in a medium containing 40 per cent bile, that it hydrolyzes arginine, produces dextran in a broth containing 5 per cent saccharose and does not reduce litmus milk. It is differentiated from enterococci by the fact that it does not tolerate a temperature of 60 C. for 30 minutes and will not grow in a medium containing 6.5 per cent of sodium chloride. Blood for cultures should be taken before administration of penicillin.

Schweizerische medizinische Wochenschrift, Basel

80:873-928 (Aug. 26) 1950. **Partial Index**

Male Sex Hormone in Advanced Mammary Cancer.—Ricklin treated with testosterone proprionate 12 women with advanced mammary cancer. Some of these had a tumor which was inoperable and others presented extensive skeletal and soft tissue metastases. The patients were given 300 mg. of the drug per week, with a total dose of 3,000 to 7,000 mg. One patient with massive metastases of lungs and liver died on the sixteenth day of treatment. Seven patients died within five to 17 months after institution of the testosterone propionate therapy. The four living patients were treated for 4, 6, 7 and 12 months, respectively. Five of the 11 patients showed objective improvement, which was maintained on the average for eight months. It consisted of regression of the primary tumor and regional metastases in the lymph nodes, calcification of osteolytic skeletal metastases or rapid consolidation of pathological fractures. There was no improvement in advanced metastases of the liver and lungs. Subjective improvement in the general condition and relief of pain for at least two to three months was observed in six patients. Favorable experiences by other authors with bilateral ovariectomy and hormone therapy in younger patients was confirmed by the authors in one patient aged 42. Testosterone propionate does not cure mammary cancer but is a valuable palliative.

80:929-952 (Sept. 2) 1950

Complications of Q-Fever.—Moeschlin and Koszewski report on 50 patients with clinical diagnosis of Q-fever established by serum tests. Nine of the 50 patients had extrapulmonary complications. Five had thrombophlebitis with pulmonary embolism, three had epididymitis, one had encephalitis and one had pancreatitis. Only one of the nine patients with meningeal symptoms had an increase of cells in the cerebrospinal fluid. The extrapulmonary complications occurred after remission of the pulmonary symptoms, between the fourteenth and twenty-third day in the cases with thrombophlebitis, on the eighteenth day in the case of encephalitis and between the twenty-sixth and forty-third day in the cases of epididymitis and pancreatitis. These complications are probably specific rickettsial disorders. Five weeks after the onset of Q-fever, urine from a patient with epididymitis, when inoculated into guinea pigs, proved indirectly the presence of rickettsia by the development of a positive complement reaction in the blood of the inoculated animals. The relatively high incidence of complications in patients with severe Q-fever makes early discharge from the hospital inadvisable. Patients should not be permitted to resume their occupations earlier than three to four weeks after complete defervescence.

Dimercaprol (BAL) in Diffuse Impairment of Liver Parenchyma.—Rapid clinical improvement obtained with dimercaprol (BAL) in four patients with hepatitis occurring during treatment with neoarsphenamine induced Janovics and Takó to treat 38 of 63 patients with acute diffuse liver disturbance with the drug. In the course of five days, 1,100 Gm. were administered, 300 Gm. on the first and second days, 200 Gm. on the third and fourth days and 100 Gm. on the fifth day. Treatment with dimercaprol was instituted when bed rest, Morisson diet, administration of vitamin B, adrenal cortex extract, insulin, choline derivatives and supply of fluids proved ineffective. Diminution in the size of the liver was observed the day after treatment with dimercaprol was discontinued. Liver tenderness subsided, and bile could be aspirated with the duodenal tube in all the patients. The bilirubin content in the urine was minimal, the urobilin was increased. The iodine reaction of bilirubin in the urine was negative, when the bilirubin content of the serum still varied between 6 and 8 mg. per 100 cc. The improvement in the clinical picture and in the laboratory observations was more pronounced in patients who were treated with dimercaprol than in those to whom it was not given. Results of examination of 16 patients three months after and of six patients six months after dimercaprol therapy was discontinued were highly satisfactory. Dimercaprol, similar to glutathione and a substitute for this reduced substance, activates the enzymes containing the sulfhydryl group by keeping the sulfhydril group in a reduced stage. Dimercaprol also transmits its own sulfur atom to the tissues. It thus plays an active part in the production of enzymes.

Semaine des Hôpitaux de Paris

26:3669-3718 (Sept. 22) 1950. **Partial Index**

Acute Leukemia.—Tzanck and co-workers report on 60 patients with acute leukemia. Abnormal bleeding occurred in every patient in the course of the disease, but cutaneous and mucosal hemorrhages were predominant. Petechiae were present in 57 patients, ecchymoses in 32 and bleeding from the gums and epistaxis in 31. Gingival bleeding seems to be associated with stomatosis, an early manifestation of acute myeloblastic leukemia and consequently occurs more frequently in adults. Cerebromeningeal hemorrhages occurred in six patients treated with 4-aminopteroylglutamic acid (aminopterin) and is to be considered a serious complication of this method of treatment. Biologic studies of blood constituents suggested a severe disturbance of the three stages of the clotting process. The pronounced prolongation of the bleeding time and the changed capillary fragility indicated a disturbance of the first or capillary stage. Thrombopenia with total loss of retractability of the clot demonstrated a disturbance of the second stage. Mild hypoprothrombinemia and the disturbance of the prothrombin consumption are characteristic of the impairment of the third stage. Studies of the tolerance of the leukemic plasma to heparin and to protamine in vitro and of the protamine index of the amount of protamine required for coagulation of heparinized blood demonstrated that the blood of patients with acute leukemia does not contain excessive amounts of a

heparin-like substance and showed that thrombopenia is responsible for the disturbance. This thrombopenia is linked with inhibition of the megakaryocytes. Hemostasis in acute leukemia may be obtained, at least temporarily, by exchange transfusions and intravenous administration of protamine sulfate combined with local hemostasis by means of gelatin tampons and 500 units of thrombin.

In Vitro Test of Heparin Tolerance.—Soulier and Le Bolloch performed a modified Waugh-Rudick test for increased coagulability of the blood on 146 patients with various disturbances of the clotting process and on 60 control persons. Nine patients had hypoprothrombinemia, eight had thrombopenia, seven were hemophiliacs and two had fibrinopenia. Additional patients had a simultaneous deficiency of several clotting factors, and others had hemorrhagic syndromes of distinctly vascular origin. Twenty-two patients had thrombosis. The authors believe that the in vitro test of tolerance to heparin is superior to other tests by which the total coagulability of the blood may be measured, such as Howell's clotting time test, Allen's protamine index and Takat's in vivo test of tolerance to heparin. Determination of the number of platelets, of the fibrinogen level or of the prothrombin level may be valuable but is not as useful as the heparin tolerance test, which conclusively determines decreased or increased coagulability. The isolated deficiency of one of the clotting factors does not prevent the occurrence of a thrombosis, even in the presence of a mild total hypercoagulability. The heparin tolerance test and the evaluation of one or the other of the deficient factors supplement one another. The determination of the prothrombin consumption in the course of the clotting process aids in the evaluation of the first stage of this process and protects against the variations of the fibrinogen, but it does not provide any information about increased coagulability and is therefore of no aid in the diagnosis of thrombosis. The tolerance test is an aid to diagnosis of hemorrhagic diathesis by detection or confirmation of a decreased coagulability and of thrombosis by demonstration of an increased coagulability. It is a guide to treatment with anticoagulants because it facilitates the choice of the drug and of its effective dosage.

Ugeskrift for Laeger, Copenhagen

112:1205-1238 (Aug. 31) 1950

Anticoagulants in Treatment of Coronary Occlusion.—Holten states that treatment of coronary occlusion with anticoagulants reduces considerably the mortality in this disease. Of 430 patients with coronary occlusion treated in various medical departments in Denmark from June 1948 to June 1950, 174 admitted on even dates were given heparin for 24 hours and bishydroxydicoumarin (dicumarol®) for three weeks and 250 admitted on odd dates received no anticoagulants. The bishydroxydicoumarin dosage was based on frequent determinations of the prothrombin time, the aim being a reduction to about 30 per cent of the normal. The treatment was otherwise the same for the two groups. Of the first group, 39 (22.5 per cent) died, of the second, 92 (36 per cent) died. The improvement in prognosis was most pronounced in the age group 60-69, in which the mortality was 17 per cent among the patients given anticoagulants as against 43 per cent among those not given anticoagulants. During anticoagulant treatment, thromboembolic complications occurred in seven patients (4 per cent) and in 36 patients (14 per cent) in the control group in the same period. The number of deaths in the first week of treatment was 11.5 per cent in the first group and 19.5 per cent in the second. An important part of the effect of the treatment is believed to depend on prevention of growth of the thrombus. The anticoagulant treatment seemed significantly to improve the prognosis in patients who had had earlier attacks of coronary occlusion; of 25 such patients treated, five died, while of the 32 untreated, 15 died.

Wiener klinische Wochenschrift, Vienna

62:453-468 (June 30) 1950

Ligature of Superior Vena Cava.—Strahberger believes that ligature of the superior vena cava, provided that it does not include the vena azygos, is not a life-threatening procedure and may be employed in the course of surgical intervention for bronchial carcinoma invading the vein. His opinion is based on postmortem observations of cases of complete occlusion of the superior vena cava cited in the literature. Experiments in dogs demonstrated the absence of stasis after the ligature of the superior vena cava above the vena azygos. The animals were alert and fresh a few days after the operation. Neither history nor necropsy revealed the presence of stasis in eight persons who had died from bronchial carcinoma that occluded the superior vena cava above the vena azygos. A slight swelling of the neck and face and a mild headache may develop, but these subside with the development of collateral circulation. Enlarged cutaneous veins will not be observed over the thorax and abdominal wall. Occlusion of both the superior vena cava and the vena azygos may lead to severe life-threatening phenomena. Death may result rapidly from stasis in the vital organs, particularly the brain, and from increasing anoxemia. Pronounced venous congestion over the chest and the abdomen is characteristic of a simultaneous occlusion of the superior vena cava and vena azygos. Anastomosis after resection of a stenosed portion of the superior vena cava is not feasible, because it cannot be done without tension. Complicated methods of anastomosis are contraindicated in radical intervention for bronchial carcinoma. Resection and ligature of the superior vena cava above the vena azygos may be carried out without great hazard to the patient, provided the general condition and heart function are adequate and provided the vena azygos is normal and is not occluded. Section of superior vena cava and vena azygos will be fatal in the great majority of cases and is, therefore, not permissible.

62:485-500 (July 14) 1950

Hypoproteinemia in Pernicious Anemia.—Schneiderbaur reports on 37 patients with pernicious anemia, 24 of whom had an abnormal serum protein level. There was an abnormal decrease in the total amount of protein in the blood and in the albumin content. This decrease was severe in 16 patients and milder in eight. The hypoproteinemia was more pronounced in patients with severer pernicious anemia and particularly in those of advanced age. The hypoalbuminemia improved simultaneously with the increase in number of erythrocytes and hemoglobin content following liver therapy. Some of the patients still had a mild hypoalbuminemia, although the red blood cell picture had been restored to normal. Additional exogenous protein supply through blood transfusion appeared indispensable for the relief of hypoalbuminemia. Relation between blood proteins and erythrocytes was demonstrated by the observation of resistance of patients with pernicious anemia to liver therapy in Vienna and elsewhere in Europe during the postwar starvation period of 1945-1946 and of optimal effects of liver therapy with respect to efficiency, duration and prevention of recurrences when combined with blood transfusion. Hypoproteinemia (hypoalbuminemia) occurring under normal nutritional conditions in patients with pernicious anemia is to be considered as endogenous and probably due to disturbance of liver function but may be partly also exogenous if a relative alimentary protein deficiency is present.

BOOK NOTICES

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Physicians Federal Income Tax Guide and Simplified Accounting Record for the Preparation of 1950 Returns and 1951 Estimates. By Hugh J. Campbell and James B. Liberman. 1951 edition. Paper. $2.50. Pp. 127. Doniger & Raughley, Inc., Great Neck, New York, 1950.

With the approach of the federal income tax return season, physicians will find of interest and benefit the contents of this brochure, which undertakes to state in an understandable way the requirements of the federal law as they apply to physicians. There is a detailed discussion of the deductions a physician may claim, including a two column statement concerning the deductibility of entertainment expenses. While the reader may be a bit skeptical of the advice given on page 37, paragraph 81, that expenditures for funeral wreaths are deductible as "entertainment expenses," the authors do emphasize the requirement that, to be deductible, entertainment expenses must have been incurred for business purposes and that adequate proof must exist not only of the expenditures but of the purpose. That is an important admonition, and physicians will proceed wisely if they keep it in mind in completing their income tax returns.

World Surgery 1950: Technics, Improvisations and Procedures Gathered from the Surgical Literature of the World. By Stephan A. Zieman, M.A., M.D., F.A.C.S. Cloth. $6. Pp. 177, with 53 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

This volume attempts to survey and present material from the world literature, and emphasizes the newer concepts in surgery. The voluminous material selected shows good organization and lucid presentation. The contents include gastrointestinal surgery, cardiovascular-respiratory surgery, gynecology, obstetrics, orthopedics, genitourinary surgery, neurosurgery and psychosurgery, ophthalmology and otolaryngology and head, neck and miscellaneous surgery. Under the last named heading are included anesthesiology, radiology, preoperative and postoperative care, blood substitutes and antibiotics. At the end of the work is an index of authors and of subjects and the list of journals from which these articles have been abstracted. This book can be recommended as a survey of some of the world surgical literature.

Handbook of Medical Protozoology for Medical Men, Parasitologists and Zoologists. By Cecil A. Hoare, D.Sc., Protozoologist to the Wellcome Laboratories of Tropical Medicine, London. Cloth. $7. Pp. 334, with 43 illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1950.

This book is by an outstanding, well known protozoologist, and factually it is especially useful. Unfortunately, there is no bibliography associated with the text or as a source of reference material at the end of the book, although the author has obviously drawn widely from the literature for his presentation. His sections on the amebas and the trypanosomes are especially well done, because for a long time the author has been closely affiliated with these fields. There is a short section on each of the parasites, dealing briefly with the clinical aspects and the course of the infections. Admittedly, the amount of clinical material would be inadequate for a clinician, but the author realizes this and so states in his introduction. This book is a valuable addition to the subject of medical protozoology.

Human Sterilization: Techniques of Permanent Conception Control. By Robert Latou Dickinson, M.D., and Clarence James Gamble, M.D. Paper. 25 cents. Pp. 40, with 31 illustrations. Dr. C. J. Gamble, 255 Adams St., Milton, Mass.; Human Betterment League of North Carolina, Box 3030 Winston-Salem, 1950.

This monograph attempts to present, in a semiphilosophical way, the subject of human sterilization. The subject has been oversimplified. The statement that "male sterilization is readily done in the surgeon's office" is not acceptable. Although this might have been accomplished many times, it is surely not to be encouraged or recommended. This subject is timely and has a specific place in medical literature. Unfortunately, the illustrations do not show up to advantage on the poor quality of paper used. Space should have been devoted to complications and their treatments. A rather extensive author index is included.

Clinical Applications of Suggestion and Hypnosis. By William T. Heron, M.A., Ph.D., Professor of Psychology, University of Minnesota, Minneapolis. Cloth. $3. Pp. 116. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This is a short summary of present knowledge concerning hypnosis and a presentation of methods for its professional use by physicians, dentists and clinical psychologists. The author emphasizes that in use of hypnosis the professional man must think of himself in the role of a teacher guiding the patient toward objectives which the patient realizes are to his best interest. Methods for the induction of the hynotic state are outlined, and mention is made of the use of posthypnotic suggestion and group hypnosis. Precautions in the use of the method are outlined. The author recommends that hypnosis be used to a much greater extent in the clinical handling of patients.

It is extremely doubtful whether physicians, dentists or clinical psychologists would be justified in undertaking the use of the hypnotic method with their patients solely on the basis of the information provided here. A much more thorough study of the subject, choice of methods and the mental mechanisms involved would appear necessary for effective clinical use.

Researches on the Measurement of Human Performance. By N. H. Mackworth. Medical Research Council Special Report Series No. 268. Paper. 4s. Pp. 156, with 60 illustrations. His Majesty's Stationery Office, York House, Kingsway, London, W.C.2, 1950.

This is an excellent publication. It cannot be recommended too highly for the purpose it intends to serve. The subject matter is divided into two parts. The first part deals with visual and auditory vigilance tests, and results are presented showing that one can avoid the decrease in efficiency, which occurs usually after 30 minutes, by providing shorter periods of duty or by informing the persons on watch regarding their performance. The second part deals with tests for determining the effect of high atmospheric temperatures and of exposure to nonlethal war gases on the performance over long periods of sensory, intellectual and muscular work. For example, results are presented showing that deterioration of performance occurs noticeably at "effective temperatures" above from 83 F. to 87.5 F., that is, at the dry bulb/wet bulb readings of 90/80 F. and 95/85 F. with an air movement of 100 feet per minute. In view of the information provided, the publication should be in every library not restricted to fiction.

Methods of Tissue Culture. By Raymond C. Parker, Ph.D., Associate Professor of Experimental Cytology, School of Hygiene, University of Toronto, Toronto. With a chapter by Joseph F. Morgan, Ph.D. Second edition. Cloth. $7.50. Pp. 294, with 113 illustrations. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 49 E. 33rd St., New York 16, 1950.

The first edition of this book was published in 1938 and incorporated the technics employed by the late Dr. Alexis Carrel. The new edition retains many of the original sections, although these have been extended by the inclusion of procedures which are presently generally accepted. The subject is concisely and clearly presented, and details of procedures and formulas are adequate. The text is well illustrated, and more than 200 references are cited.

The 1949 Year Book of Endocrinology, Metabolism and Nutrition (December 1948 - January 1949). Endocrinology. Edited by Willard O. Thompson, M.D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Metabolism and Nutrition. Edited by Tom D. Spies, M.D., Chairman, Department of Nutrition and Metabolism, Northwestern University School of Medicine, Chicago. Cloth. $4.75. Pp. 550, with 101 illustrations. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1950.

This is an attempt to abstract the important literature of the year on endocrinology, metabolism and nutrition, with editorial comment on the findings. In reviewing the editor's comments on pituitary adrenocorticotropic hormone (ACTH) and cortisone, it is interesting to note that an excessive secretion of potassium is reported as producing dangerously low levels of potassium concentration in body fluids. Also, the categorical statement is made that patients treated with these agents have shown all manifestations of Cushing's syndrome. To date, the thin skin, the ecchymoses and polycythemia of Cushing's syndrome have not been reported following pituitary adrenocorticotropic hormone or cortisone therapy. Whether these additional observations will be encountered following administration of these agents over a longer period remains to be seen. In discussing pulmonary tuberculosis, the statement is made that ". . . production of tubercle bacilli appears not to be affected, and if the ACTH administration is discontinued, a sévere relapse occurs." This is probably another error in the publication. In all likelihood, reproduction of tubercle bacilli was meant in this case.

Selye's theory of the general adaptation syndrome and stress seems inadequately interpreted, since the editor apparently disregards the exhaustion phase occurring in chronic stress and does not suggest that certain disease states may ensue either from exhaustion or from overreaction of the defense mechanism to stress. Of interest in the metabolic studies outlined were Jorpes' recrystallization of insulin with reduction of insulin sensitivity in patients with allergy to the hormone and the successful use of protamine zinc insulin injection and cholesterol implants by Vargas. The review of sodium chloride restriction in hypertensive vascular disease and the presentation of low sodium diets is of timely interest. The difficulties of assembling a book of this type are manifest, but editorial comments should be reviewed with care and rectitude.

The Sulphonamides. By F. Hawking, M.D., and J. Stewart Lawrence, M.D., M.R.C.P., Physician-in-Charge of the Walkden Clinic, Manchester. Cloth. 42s. Pp. 389, with 46 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1; Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

There have been many books and monographs written about the sulfonamides, but in recent years the popularity of the antibiotics has caused a lack of interest in these older chemotherapeutic agents. Nevertheless, the sulfonamides are still valuable drugs and have a rightful place in medicine. Drs. Hawking and Lawrence have done an excellent job in reevaluating the sulfonamide compounds, and their book is one of the most complete yet published. The introduction contains a brief history of the discovery and development of sulfonamides. The principal chemical reactions of these compounds are briefly presented, and the chemical formula and physical and chemical properties of each of the available drugs is given. Most valuable is the list of 236 trade names for sulfonamide drugs, for which the common or chemical name is given. The nomenclature problem, especially in Europe, is exceedingly confusing, there being 64 different trade names for sulfanilamide alone.

The mechanism of action of the sulfonamides is adequately discussed, and the antibacterial spectrum of the various derivatives is presented. The problem of bacterial resistance is also discussed. The material on pharmacology, mode of administration and principles governing the choice of compounds for specific injections is well written. Not all American workers will agree with some of the recommendations, but the discussions are adequate and convincing. The authors also present their concept of when sulfonamides should be preferred to penicillin and vice versa. A major portion of the book concerns the use of various sulfonamides in a variety of infections. Although it is obvious that the British use more sulfonamides in proportion to the antibiotics than do their American colleagues, the documentation and objective reasoning for each of the recommendations made is impressive and convincing.

The last portion of the book concerns toxicity and sensitization to the sulfonamides. It is apparent that the British have seen less toxicity to the sulfonamides than have American physicians. This may reflect a more judicious use of these compounds on their part and an alertness to the early signs of toxicity, with consequent prevention of some of the more serious sequelae reported in the American literature. The authors, however, evaluate critically the evidence regarding clinical toxicity, and their conclusions are well supported by this evidence. This book is obviously the most thorough and fundamental treatise on the sulfonamides yet published. It can be used profitably by physicians throughout the world and is of particular value to internists and pediatricians.

The Rhesus Danger: Its Medical, Moral and Legal Aspects. By R. N. C. McCurdy, M.B., Ch.B., D.P.H. Paper. 3s. Pp. 138. William Heinemann, Ltd., 99 Great Russell St., London, W.C.1, 1950.

The author of this book, himself a victim of Rh sensitization, which affected two of his children, has made a thorough study of the subject. This interesting monograph is the fruit of his labors. The book is written primarily for the information of patients confronted with the problem, but also can be read with profit by physicians. In the first part of the book, comprising 48 pages, a lucid description is given of mendelian inheritance, the blood groups, the discovery of the Rh factor, Rh sensitization and its effects and the present method of treatment of erythroblastosis fetalis. In this section are presented some interesting statistical estimates of the incidence of erythroblastosis fetalis. The author exaggerates somewhat the danger of cerebral sequelae in infants who survive, considering that recent observations show that such sequelae are rare among babies treated by exchange transfusion.

In the second section of the book, the author discusses the alternatives open to the luckless couple in whom the husband is homozygous Rh positive and the wife Rh negative and so strongly sensitized that every Rh-positive fetus will almost surely be stillborn. He discusses in turn the medical, moral and legal implications of contraception, sterilization, therapeutic abortion, adoption, artificial insemination from a donor and divorce. While no final conclusion concerning any of these solutions is possible at the present time, the author has succeeded in presenting an interesting account of these controversial matters.

There are remarkably few misstatements in the monograph, which can, therefore, be safely recommended as an introduction to the subject. This being a British publication, the CDE notations are used with the usual confusion between genotypes and phenotypes; for example, on page 20 the author states, "A person's red cells must contain three pairs of Rh genes. . . ." At times the author indulges in speculation, as when he suggests treating the semen of heterozygous husbands with anti-Rh serum in order to immobilize or kill the spermatozoa carrying the Rh-positive gene. Another fanciful suggestion is the idea of preparing an antibody against Rh antibodies, in order to neutralize the Rh antibodies and prevent their harmful effects. The monograph fills a real need, and its few slight imperfections will hardly interfere with its popularity.

Selective Partial Ablation of the Frontal Cortex: A Correlative Study of Its Effects on Human Psychotic Subjects. By The Columbia-Greystone Associates. Edited by Fred A. Mettler, M.D., Ph.D. Problems of the Human Brain. Cloth. $10. Pp. 517, with 122 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33rd St., New York 16, 1949.

This is a well documented report of a thorough study of 24 cases of mental disease in which selective ablations of specific areas of the frontal cortex were carried out. This new selective operation is called topectomy by the authors. It consists of removal of a specific area of gray matter, in contrast to the standard form of prefrontal lobotomy, which consists of incisions into the anatomically less well differentiated white matter (leukotomy).

In addition to the 24 patients on whom topectomy was performed, 24 control patients were studied with equal thoroughness; in eight of these the standard leukotomy was performed.

The authors embarked on their new surgical approach in an effort to discover whether small and specific ablations of well circumscribed areas of the frontal cortex might have the same beneficial effects that leukotomy (the standard form of prefrontal lobotomy) does, without the undesirable but unavoidable side effects of the extensive standard operation. They also wished to discover which areas would have to be ablated to achieve these results. Prior to this work, it was an open question whether the extent of the operation per se had anything to do with its effects (a not inconceivable possibility in view of the results of Lashley's work on animals) or whether interference with certain specific cortical systems was responsible for the desirable results. If the latter were the case, then certainly it should be possible to minimize the undesirable side effects by narrowing the area operated on. It was the wise decision of the authors to remove the much better defined cortical areas rather than the interwoven and anatomically far less differentiated fiber tracts of the white matter.

Although the authors' series of cases was small, they nevertheless have produced convincing evidence that the beneficial effects of frontal lobe operation are not based on the total amount of frontal lobe tissue removed. No correlation was found between the clinical result and the amount and weight of gray brain tissue removed. On the contrary, desirable clinical results were found to be based on the removal of, or significant encroachment on, areas 9 and 10 as well as the small adjacent area 46. In the 13 of the 24 patients on whom topectomy was performed and in whom interruption of psychotic behavior resulted, one of these three areas had been removed wholly or in part. Of those patients in whom one of these three areas had not been encroached on, none recovered. Careful postoperative electroencephalographic study showed that of the 24 patients subjected to topectomy, 13 continued to show electroencephalographic abnormalities over the first 30 postoperative days; in nine cases this abnormality continued for six months after operation. Epileptic seizures occurred in five of the 24 patients (one to nine seizures each). These figures suggest that these postoperative complications exceed those which occur in standard lobotomy. This increase in cerebral dysrhythmia may be a drawback of the method unless formation of epileptogenic scars can be prevented by further advances in technic.

Nevertheless, the important results that the authors have obtained with their method of localized cortical ablations will undoubtedly be a valuable incentive to improvement of the clinical results of lobotomy by more limited and circumscribed incisions into the white matter; and these efforts will be significantly aided by careful study of cortical ablations performed by the authors. This book is an important landmark in the development of the surgical approach to the treatment of mental illness, and its perusal will be essential to all who perform or recommend psychosurgery.

Physical Chemistry for Premedical Students. By John Page Amsden, Professor of Chemistry, Dartmouth College, Hanover, N. H. Second edition. Cloth. $4.25. Pp. 317, with illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1950.

This is a short textbook written especially for the busy premedical student. It makes no claim to complete coverage of physical chemistry. Many important subjects have been sacrificed in deference to an overloaded time table. The development of some of the subjects included in the text has been curtailed for the same reason. The important subject of thermodynamics, however, has been added to the present edition. The material for the most part is clearly presented. In some instances, as in the definition of the order of a reaction, the phraseology appears awkward. Clarity, in such cases, is usually restored by the judicious use of examples.

The mathematical requirements for comprehension of the text are limited to a knowledge of quadratic equations and the use of logarithms, except in the few cases where calculus is essential. Problems are presented at the end of each chapter. The author's careful selection of subjects and the clarity of their presentation should insure the wide use of this textbook in premedical schools.

The Mental Health Programs of the Forty-Eight States: A Report to the Governors' Conference. Paper. $4. Pp. 377. The Council of State Governments, 1313 E. 60th St., Chicago 37, 1950.

This is a comprehensive and challenging report on the present status of mental health programs in the 48 states, with emphasis on mental hospital care. The information was gathered by a special research staff by means of questionnaires and other information obtained from the offices of the governors of the 48 states and from state mental health and hospital authorities. There are over 100 pages of detailed tabulations, describing organization, appropriation, costs, personnel, conditions of buildings and numerous other aspects of mental hospital care. It is startling to find, for example, that the average annual expenditure for patients varies from a little over $400 a year in Tennessee to $1,100 in Wisconsin. Many of these disparities cannot be explained by regional differences. The report cites an estimated total of 326,000 additional mental hospital beds needed, as of Jan. 1, 1950. Overcrowding and the need for additional personnel are stated to be the two most important problems in mental hospital care. The report recognizes also that not enough emphasis is being placed on active treatment of patients after admission. Recommendations made include increased state hospital space, more modern equipment, more and better personnel and the establishment of preventive programs, including mental health clinics outside of hospitals, child guidance clinics and follow-up clinics for those on leave from state hospitals. The report does not discuss extensively the preventive aspects of mental health but states that "in this field very little is known." The need for research is very properly emphasized. This is an excellent general review of the present status of mental health programs in this country and should prove of great value to all those concerned with mental health.

A Guide to Psychiatric Books with a Suggested Basic Reading List. Compiled by Karl A. Menninger, M.D., General Director of the Department of Education, The Menninger Foundation, Topeka, Kansas. With the Collaboration of George Devereux, Ph.D., Lecturer in Anthropology, The Menninger School of Psychiatry and the Topeka Institute for Psychoanalysis, Topeka, Kansas. The Menninger Clinic Monograph Series No. 7. Cloth. $3.50. Pp. 148. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

The authors have compiled a comprehensive reading list of books on psychiatry to fill the need for a guide for teachers in psychiatry, and ancillary fields, in the planning and development of systems of education. The authors note that the list is obviously too long for indiscriminate prescription by teachers in psychiatry and have increased its usefulness by starring of items in each category which appear of outstanding significance. The preparation of the book itself and the selection of the starred items was carried out by consultation with many colleagues in the field of psychiatry and in allied fields of psychology, sociology, anthropology, nursing and social work. Books included are selected only from books published prior to 1949.

The list is divided into two parts. Part 1, a guide to psychiatric books, includes titles under basic disciplines of the field, titles in the various specialized fields of psychiatry, psychiatric therapies and preventive psychiatry and mental hygiene. Part 2 is a suggested basic psychiatric reading list related to the several major groupings mentioned in part 1. Preparation of such a list seems long overdue. Undoubtedly it will fill a long-felt need, particularly for persons engaged in planning programs of psychiatric education.

Transactions of the American Goiter Association: 1949 Annual Session, May 26, 27, 28, Hotel Loraine, Madison, Wisconsin. Cloth. $10.50. Pp. 460, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1950.

This volume contains the papers presented at the twenty-sixth annual meeting of the American Goiter Association. A perusal of the contents reveals the increasing interest in the use of radioiodine as a method of both therapy and diagnosis. One of the most important essays is on the direct estimation of the rate of thyroid hormone formation in man by the effect of the iodide ion on thyroid iodine utilization.

Another interesting report concerned the use of intravenous anesthesia in basal metabolism determination. A group of normal subjects as well as patients with certain disease states were

tested by this procedure. Normal patients showed a slight drop in basal metabolic rate with this procedure, but this was not below normal range. Patients with severe hyperthyroidism showed little change in the metabolic rate under anesthesia and required larger doses of intravenous anesthetic than the normal patient. Patients with high metabolic rate due to various nervous states had a drop in basal metabolism to normal under anesthesia, thus indicating absence of hyperthyroidism. This method of determining basal metabolism may prove of value in the differential diagnosis of hyperthyroidism. The book as a whole represents a compilation of modern theory and practice in the treatment of the various thyroid diseases.

Lehrbuch der Kinderheilkunde. Von R. Degkwitz, et al. Fourth and fifth edition edited by E. Rominger. Cloth. 49.80 marks. Pp. 971, with 267 illustrations. Springer-Verlag, Reichpietschufer 20, Berlin W 35, 1950.

It is gratifying to see medical books of quality appear again in Europe. This most recent edition of Rominger's textbook of pediatrics contains contributions of pediatricians well known in this country and well qualified to write their respective chapters. The purpose of the book, as stated by the editor, is to give a basic working knowledge of pediatrics to the medical student and to the general practitioner. This has been ably achieved. The "most important results of research," however, which the authors attempted to incorporate in the text, are to some extent missing. This is probably due to their admitted inability to obtain all the necessary literature from abroad. The German scientific way of writing has unfortunately not changed through the decades. Sentences are unnecessarily long and cumbersome to read. The definition of rheumatic fever, for example, consists of nine lines, eight commas, but no periods.

In comparison with American textbooks, there are some differences in concept of some disease processes. Roseola infantum, for instance, is not considered a separate clinical entity. Erythroblastosis as well as cystic fibrosis of the pancreas are given little space, whereas nutritional disturbances like *Milchnaerschaden* and *Mehlnaehrschaden* still seem to play a large role in German pediatric thinking. The discussion of treatment often falls short of its goal. Specific antiepileptic drugs have apparently not yet been given extensive trials. The outline of care for the rheumatic fever patient is but brief.

The book has many excellent illustrations and is well printed on good paper. Yet one would like to see the custom discontinued of printing long passages in fine print, as is commonly done in German textbooks.

The general practitioner as well as the pediatrician will find this textbook a useful reference.

McClung's Handbook of Microscopical Technique for Workers in Animal and Plant Tissues. By Thirty-Five Authors. Edited by Ruth McClung Jones, Professor of Biology, Winthrop College, Rock Hill, South Carolina. Third edition. Cloth. $12. Pp. 790, with 157 illustrations. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 49 E. 33rd St., New York 16, 1950.

Microscopic examination of the cellular elements of plants and animals is an essential procedure in the biologic sciences and a supplementary method in other fields of scientific investigation. Improperly prepared specimens result in errors, misinterpretations and last, but not least, frustration on the part of the technician. Technical skill is the pinnacle of success in the field, but it is necessarily dependent on adequately detailed procedures and formulas which often are lacking in published scientific literature.

This volume, succeeding the 1937 edition of the late Clarence E. McClung, conforms with his policy of including new methods, references, fundamental principles and the characteristics of the cellular components involved. Parts 1 and 2 include the more conventional methods of preparing slides, fixation of tissues and staining procedures. Part 3 describes special procedures, such as micrurgical technic, vital stains, centrifuge microscope, phase microscopy, fluorescence microscopy, radioautographic technic, electron microscopy and microincineration methods. The volume will provide excellent reference material for clinical and pathological laboratories and biologic science departments in universities and medical schools.

Pathologic Physiology: Mechanisms of Disease. Edited by William A. Sodeman, M.D., F.A.C.P., William Henderson Professor of the Prevention of Tropical and Semi-Tropical Diseases, Tulane University of Louisiana School of Medicine, New Orleans. Cloth. $11.50. Pp. 808, with 146 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1950.

This book presents the abnormal physiology of internal diseases as viewed by 25 contributors including the editor. The presentation of physiology in this way can be likened to medical pathology presented in the well known monograph, "the Pathology of Internal Diseases," by William Boyd. There is room for this method of dealing with basic physiology, despite the existence of such familiar textbooks as Wiggers' "Physiology in Health and Disease" and Best and Taylor's "Physiological Basis of Medical Practice."

The author seeks to correlate the disturbances in physiology which are related to the clinical manifestations of internal disease. The subject matter is handled by systems and by etiological aspect of disease. The limitations of physiology make it impossible to encompass the various phases of disease presented by standard textbooks of medicine. Nevertheless, the book achieves its primary objective of explaining signs and symptoms in terms of physiology.

The contributors have written for the beginning student, so that the book can be used in conjunction with elementary textbooks of physiology and medicine. This may limit its appeal to physicians and postgraduate students. The references listed at the end of each section are sufficient to stimulate advanced study. Fundamental concepts are properly emphasized. The chapters on infection and allergy involve the science of immunology more than physiology. The typography is pleasing, and the illustrations are clear. A good index is provided. Students and practitioners of medicine will find the book a useful supplement to standard textbooks used in medicine.

Klinik und Therapie der massiven Magendarmblutung. Von Dr. Nicola Markoff, Privatdozent an der Universität Zürich. Lieferung II, Sammlung innere Medizin und ihre Grenzgebiete, herausgegeben von Prof. Dr. med. P. H. Rossier und Priv. Doz. Dr. med. O. Spühler, Paper. 14.20 Swiss francs. Pp. 135, with 31 illustrations. Hans Huber, Marktgasse 9, Bern 16, 1950.

The author of this commendable monograph discusses the problems presented by severe hemorrhage from the upper part of the gastrointestinal tract. He reviews a substantial number of previous publications and presents the results of 102 cases. These are summarized in an excellent table beginning on page 102, and 19 of them are presented in greater detail in the text. On page 83 there begins a discussion of the "treatment with food," which seems to have given good results in the author's hands; on this point his experience differs from that reported by J. R. Brown and associates (*Arch. Surg.* **61**:767-774 [Oct.] 1950). The difference is not surprising, since there are indications that geography influences the relative frequency of various types of upper gastrointestinal disease. On pages 125 and 126, the author gives a compact summary of his convictions as to diagnosis and treatment. The book closes with a bibliography of 268 references, on which the author deserves a special compliment. Whereas some recent books contain bibliographies full of mutilated foreign names and incomplete data, in the present case there seems to be complete accuracy.

A Text-Book of Venereal Diseases. By R. R. Willcox, Consultant in Venereal Diseases, St. Mary's Hospital, London. Cloth. $5. Pp. 439, with 154 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

The author is a well known English venereologist. He is consultant to several of the larger venereal disease clinics in London as well as to the World Health Organization. He has spent much time in Africa, where he has investigated venereal diseases.

This book was written, according to the author, because most of the textbooks on venereal disease were insular and ignored many disorders of venereal or nonvenereal origin which were commonly encountered in many parts of the world. This is a textbook with a global outlook, which deals with the problem of the venereologist not only in temperate climates but also in Central Africa and South Africa. The book is divided into

three parts; there is no bibliography. The first part deals with gonorrhea and related diseases. The second is concerned with the various types of syphilitic infection as well as yaws, bejel and pinta. The discussion of the latter three diseases is brief but adequate and well illustrated. The third part discusses the drugs and antibiotics used in the treatment of the venereal diseases, as well as prophylaxis and venereal disease control. This section is entirely up to date. The author has written an excellent short textbook on the venereal diseases.

On the Experimental Morphology of the Adrenal Cortex. By Hans Selye, M.D., Ph.D., D.Sc., Professor and Director of the Institute of Experimental Medicine and Surgery, University of Montreal, Montreal, Canada, and Helen Stone, B.Sc. Publication Number 74, American Lecture Series, A Monograph in American Lectures in Endocrinology, edited by Willard O. Thompson, M.D., Clinical Professor of Medicine, University of Illinois College of Medicine, Chicago. Cloth. $2.25. Pp. 105, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This small monograph was issued presumably in response to the present interest in the adrenal cortex but would have appeared more appropriately as an experimental study in one of the usual journals. The authors have studied the effects of variations in the protein and salt content of the diet on the size and appearance of the adrenal in 10 rats which had been subjected to unilateral nephrectomy and which were given injections of crude lyophilized pituitary tissue, crude saline extracts of fresh beef pituitary glands, pituitary adrenocorticotropic hormone, methyltestosterone, sodium thyroxinate and desoxycorticosterone acetate.

The senior author of the monograph has attracted attention by his "general adaptation syndrome," according to which the adrenal cortex is involved in many diseases (rheumatism and hypertension, for example) which he considers to be a result of the stresses of modern life. The simplicity with which this theory explains the phenomena of disease has attracted attention, but the more perspicacious workers in the field have not yet accepted it as fully satisfactory. The present monograph is an example of how wide conclusions may be drawn from a few experiments. Such statements as (page 28) "Since endogenous or exogenous protein-catabolites increase the ability of the pituitary to produce corticotrophin under stress, protein-anabolic testoids may inhibit hypophyseal corticotrophin secretion by diminishing the available supply of endogenous protein-catabolites," may impress some readers but will be criticized by the reader who prefers a simple presentation. Likewise, the morphological changes described in the adrenal do not justify the broad conclusions drawn by the authors.

The printing and format of this text, except for occasional oversights in proofreading, are excellent. Admirers of Selye's work will like the book; his critics will find it wanting.

Cytology of the Human Vagina. By Inés L. C. de Allende, M.D., Chief of the Division of Endocrinology, Mercedes and Martin Ferreyra Institute of Medical Investigation, and Oscar Orías, M.D., Director, Mercedes and Martin Ferreyra Institute of Medical Investigation, Córdoba, Argentina. With a Foreword by Bernardo A. Houssay, M.D. Translated from the Spanish by George W. Corner, M.D. Cloth. $7.50. Pp. 286, with 75 illustrations. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 49 E. 33rd St., New York 16, 1950.

Thanks to the brilliant studies of Papanicolaou and others, it is now known that the vaginal mucosa in many animals and in humans reacts to hormones. Therefore, the trophic and cyclic functions of the sex hormones may easily be studied by cytological examination of the vaginal contents. This book is based on such intensive study. The translator is to be congratulated on having produced a book which is delightful to read.

The book is the result of long term study of about 200 examinations of normal subjects and those suffering from disorders of genital function. The authors discuss the female reproductive system, the human vaginal epithelium and its variations, preparations of the vaginal smear, characteristic vaginal smears and cytological curves, cytology of the vagina during the ovulating menstrual cycle, anovulatory cycles as seen in vaginal smears and the correlation between vaginal smears and menstrual disorders, sterility and other conditions.

Some of the clinical conclusions drawn by the authors might be contested. One might take strong issue with the statement that one should regulate the use of estrogens by maintaining the vaginal cornification within physiological limits, and with its characteristic alterations. The patient's clinical response and improvement are more important than the type of vaginal epithelium which follows the administration of estrogens. Not all will agree on the therapeutic use of estrogens in sterility due to ovarian insufficiency as advocated by the authors. It was found that progesterone neutralizes the exaggerated estrogenic activity and brings on menstruation if amenorrhea has existed. The most definite indication for testosterone therapy was found to be quick action in counteracting an exaggeratedly high estrogenic activity in the body. The administration of chorionic gonadotropins alone did not visibly improve the grade of vaginal cornification in cases of ovarian insufficiency. When chorionic gonadotropin was combined with a hypophyseal factor, the effect was to advance by one or two grades the functional capacity that exists at the start of treatment. At the end of the book is an extensive bibliography, which is valuable in itself. There are 75 illustrations, many in color. All the illustrations and charts have been well reproduced; the quality of the paper is good, and the book is well bound. The authors, the translator and the publishers are all to be congratulated on the excellence of the book.

Principles of Public Health Administration. By John J. Hanlon, M.S., M.D., M.P.H., Associate Professor of Public Health Practice, School of Public Health, University of Michigan, Ann Arbor. Cloth. $6. Pp. 386, with 48 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1950.

The modern health department must do a complex job in a complicated social structure. The health officer must integrate his staff with all its varied training disciplines into a working team; cooperation of members of the health professions in private practice must be obtained; the community must be educated to look after its health needs, and other governmental and voluntary agencies must be understood so the health department program may be suitably integrated into the community picture.

Hanlon's new book gives much emphasis to the health officer's administrative problems, with full discussions of personnel management, fiscal and legal matters, public relations and the basic principles of organization. Public health administration has approached these problems in recent years with the scientific method now becoming widely used in the social sciences, and there is a great wealth of highly useful material. However, no previous public health textbook has devoted this much attention to these matters, even though they occupy a rather large proportion of the day's work.

The usual basic services of vital statistics, communicable disease control, maternal and child health, environmental health, laboratory services and health education are considered adequately. In addition, much attention is devoted to chronic disease control and to the administrative problems of medical care as they affect the health officer. Obviously, with communicable disease control as advanced as it now is, the community requires measures to aid in solving the chronic disease problems which are now the major public enemies. There exist already technics, such as multiphasic screening, which can best be applied on a community basis and which hold real promise of worth while achievement in aiding in the control of this group of diseases. The book contains a most interesting discussion of the economic and social value of preventive medicine, with much more detailed treatment than is usually found.

Unfortunately, insufficient emphasis is given to problems of such importance as mental health, nutrition, accident prevention, alcoholism, the hygiene of housing and disaster services. The health department of today must prepare itself to discharge its proper role in these fields also. Little attention is paid to the place of the medical social worker in public health activities, and the discussion of health centers is much too brief to be satisfactory. There is inadequate consideration of the essential planning roles of health councils and similar bodies so important in giving the citizen the chance to play the part in the total health program which only he can play. The bibliography is mediocre,

and the indexing could definitely be improved to make the wealth of subject matter more readily available.

Even with these limitations, the book is still an unusually valuable one and represents a definite step forward in providing a textbook for public health students and a manual for active workers in the field. The practicing physician who is a member of a board of health or is active in community health services will find much helpful information also. It is primarily for "the man who decides to devote his professional life to . . . public health administration. What is expected of him appears to be impossible. Physician, engineer, lawyer, political scientist, economist, sociologist—must he be all of these and more?" The answer is, of course, in the affirmative, and this book will make the impossible task even more satisfying and rewarding than it now is.

Eyes and Industry (Formerly Industrial Ophthalmology). By Hedwig S. Kuhn, M.D. Second edition. Cloth. $8.50. Pp. 378, with 151 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1950.

In this edition, this well known textbook on industrial ophthalmology retains its authoritative preeminence in the field. It contains much of importance not only to the industrial surgeon and the ophthalmologist with a primary interest in the field but also to the ophthalmologist who may see as private patients persons whose condition of work may play an important role in ocular comfort and efficiency.

There is a discussion of the technics of visual testing in industry, visual skills in relation to the type of employment, visual standards and the possibilities of a corrective program. A special chapter on eye injuries caused by solid bodies is contributed by Dr. Albert C. Snell and should prove informative, especially to those charged with emergency treatment of eye injuries. Further chapters deal with damage from radiation and chemicals, types of protective goggles, illumination in industry and the place of the blind in industry. In a miscellaneous chapter is discussed monocular cataract and epidemic keratoconjunctivitis in what may seem a rather illogical grouping of two unrelated conditions. Conveniently included in the appendix are the report of the Committee on Compensation for Eye Injuries of the American Medical Association, the federal specifications for goggles, standing orders for nurses and miscellaneous information on fluorescent lighting, tinted lenses and other material quoted from a number of sources.

Bronchoscopy in Pulmonary Tuberculosis: A Clinical Study of 1,001 Cases of Bronchoscopic Examinations. By Nils Froste. Acta tuberculosea scandinavica, supplementum XXIII. Paper. Pp. 119, with 2 illustrations. Boden; Einar Munksgaard, Nørregade 6, Copenhagen K, 1950.

The author is the consulting bronchoscopist at the Central Sanatorium in Sandträsk. The book is divided into chapters covering the following subjects: historical survey, material, technic, nomenclature and consultation procedure, indications and contraindications, lymphadenitis, tuberculosis, bronchostenoses, valve mechanism, atelectasis, hemoptysis, occlusion and aspiration treatments, routine bronchoscopy and postbronchoscopic complications.

Following a review of historical data, the author points out that at present there is a definite increase in the use of bronchoscopy for diagnosis in diseases of the lung. However, the therapeutic work with bronchoscopy has suffered a setback since the introduction of paraaminosalicylic acid and streptomycin for the treatment of bronchial complications in pulmonary tuberculosis.

Much space is devoted to the subject of biopsy in tuberculosis, and a special investigation was carried out to determine whether such a procedure on the bronchomucous membrane produced any "inconvenience." Of eight cases in which results of biopsy were positive for tuberculosis, there was progression in two after biopsy. In one case, in which results of biopsy were negative, bronchogenous extension of the tuberculosis arose. The author emphasizes that these three cases should at least suggest a warning note as to the possible dangers of the procedure. At the end of the book a rather inclusive bibliography is found. The book is easily read, and many illustrative cases are presented. It can be recommended to anyone interested in the bronchoscopic phase of pulmonary tuberculosis.

Surgical Treatment for Abnormalities of the Heart and Great Vessels. By Robert E. Gross, M.D., William E. Ladd Professor of Child Surgery, Harvard University Medical School, Boston. The Beaumont Lecture, Wayne County Medical Society, Detroit, Michigan. Publication Number 3, American Lecture Series, A Monograph in American Lectures in Surgery. Edited by Michael E. DeBakey, M.D., Associate Professor of Surgery, Tulane University, New Orleans, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Ky. Thoracic Surgery Division, Editor: Brian Blades, M.D., Professor of Surgery, George Washington University, Washington, D. C. Second printing. Cloth. $2. Pp. 72, with 36 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This is the twenty-fifth Beaumont Lecture, delivered in 1946 and first published in monograph form in 1947. The author was a pioneer in the development of operations for correction of most of the conditions described, which include patent ductus arteriosus, defects of the pericardium, the tetralogy of Fallot, anomalies of the aortic arch and subclavian artery and coarctation of the aorta. When the monograph was written, the author had operated on 130 patients with patent ductus arteriosus and seven patients with coarctation of the aorta. Although his operative experience has since been greatly extended, the views expressed are essentially the same as those in his more recent publications. The pathological physiology of the various anomalies is thoroughly discussed, and surgical technics are clearly illustrated.

The National Formulary. Ninth Edition. National Formulary IX. Prepared by the Committee on National Formulary under the supervision of the Council by the Authority of the American Pharmaceutical Association. Official from November 1, 1950. Cloth. $8. Pp. 877. American Pharmaceutical Association, 2215 Constitution Ave., N.W., Washington 7, D. C.; Mack Printing Company, Easton, Pa., 1950.

The new formulary contains titles and standards for 155 articles not previously included. A total of 162 items official in the previous edition were not admitted to this edition. As has been customary in the past, the admission of drugs to this edition is based not only on the therapeutic value of a given agent but also on the extent of its use. The trend to abandon outmoded botanicals and biologic preparations, which received impetus in the previous edition, is continued. Representative of this type of deletion are the botanicals uva ursi and valerian and animal products of questionable therapeutic value, such as ovary and anterior pituitary. Individual specifications for previously official drugs have also been revised and improved. Among the new features of this edition are specifications for disintegration time for tablets, weight variation standards for tablets and requirements limiting weight variation in the contents of dry ampuls and other containers. The general chapter on injections has also been revised. The new National Formulary reflects the basic changes in drug therapy which have evolved in recent years. It has value to pharmacists and pharmaceutical manufacturers as a source for information and standards for certain drugs and also provides physicians with an "official" list of many popular therapeutic agents.

Las formas anatomoclínicas de la tuberculosis tráqueobronquial en sus relaciones con la tuberculosis pulmonar del niño y del adulto. Por el doctor Manuel Tapia. Con la colaboración de los doctores José Manuel Soares de Oliveira y Luis Cerezo. Con un capítulo sobre la técnica de la broncoscopia. Por el doctor Antonio da Costa Quinta, otorrinolaringólogo del Hospital infantil de San Roque, de Lisboa. Cloth. 390 pesetas. Pp. 718, with 516 illustrations. Editorial Alhambra, Mayor, 4, Madrid, 1950.

This excellently prepared volume in Spanish on tracheobronchial tuberculosis covers a significant phase of pulmonary tuberculosis in a detailed and exhaustive fashion, adequately illustrated by colors, diagrams and photographs. The text displays a good knowledge of the subject as a result of long experience in the work concerned. The volume details the arboral bronchial distribution and limitations concerning the pulmonary segments and presents the various advances and views on this subject. Tuberculous tracheobronchitis is considered generally as to frequency and anatomic, pathological and pathogenic characteristics in relation to the primary infection and subsequent reinfection and exacerbations. The importance of tuberculosis of the bronchi and difficulties in diagnosis with the syndromes of extension in the chronic forms are detailed. Radiological

diagnosis, including indirect signs, and bronchography are well covered. Classification as to type of tuberculoses and the relation of adenopathy to this are viewed liberally, even to the consideration of perforation. The forms of extension are completely elucidated, and treatment in all phases is covered, including rest, climate, symptomatology, ultraviolet rays, cauterization, antibiotics and paraaminosalicylic acid. Collapse treatment is discussed, and full consideration is accorded pneumothorax, thoracoplasty, phrenicectomy and pneumoperitoneum. A chapter is devoted to resection (pneumonectomy and lobectomy), and in a final chapter the technic of bronchoscopy, with preparation, anesthesia and difficulties encountered, is described.

This well presented volume is liberally illustrated, detailed in every respect and printed on a high grade, filled paper. It can be recommended particularly to physicians conversant with Spanish who are interested in tracheobronchial conditions and tuberculosis in particular.

Psychiatry for Social Workers. By Lawson G. Lowrey, M.D. Second edition. Cloth. $4.50. Pp. 385. Columbia University Press, 2960 Broadway, New York 27, 1950.

This book has been prepared as a guide to social workers to enable them to recognize symptoms of common psychiatric disorders which may underlie the maladjustments of the persons with whom they deal in case work. It provides useful information for the social worker in deciding when he should call for psychiatric diagnosis and treatment, and it contains information which will enable him to realize the limitations of nonprofessonal treatment. Data on etiology, psychopathology, history, prognosis and treatment are provided for the major types of disorders. In this edition, many of the chapters have been completely revised, and a chapter on the social worker and treatment has been added which outlines some of the basic principles of case work treatment and psychotherapy. The responsibilities that a social worker may assume in treatment have been clearly defined.

Immortal Magyar: Semmelweis, Conquerer of Childbed Fever. By Frank G. Slaughter, M.D. Cloth. $3.50. Pp. 211, with 5 illustrations. Henry Schuman, Inc., Publishers, 20 E. 70th St., New York 21, 1950.

This excellent story of the life of Semmelweis appears shortly after another well written dramatization of one of the world's greatest benefactors ("The Cry and the Covenant"). The author of this book presents the tragic life of Semmelweis in a most interesting fashion. His data are factual, and he quotes fairly extensively from Semmelweis' own book, "Die Aetiologie, der Begriff and die Prophylaxis des Kindbettfieber." Slaughter is to be commended for having again brought to everyone's attention what a true scientist Semmelweis was and how his life ended in a great tragedy as a martyr to the world's stupidity. This book is definitely worth reading, even though its subject matter constantly upsets the reader because of "man's inhumanity to man."

On Low-Back Pain with Special Reference to the Value of Operative Treatment with Fusion: A Clinical and Experimental Study. By Lars Unander-Scharin. Acta orthopaedica scandinavica, Supplementum no. V. Translated from Swedish by Captain Jack O'Brien-Hitching, M.C. Paper. Pp. 221, with illustrations. Ejnar Munksgaard Forlag, Nørregade 6, Copenhagen K, 1950.

This book is divided into eight chapters: anatomy, physiology, pathology and pathophysiology of the interverbral disk; previous investigations of the roentgenologic picture, connection with trauma and the value of conservative treatment in lumbar disk degeneration; frequency of lumbago and sciatica among the members of the Stockholm Sick Benefit Society and the employees of the Stockholm Tramway Company; results of cases of lumbago and/or sciatica with roentgenologic disk degeneration that have been treated conservatively or left untreated; surgical treatment of disk degeneration in the lumbosacral spine; analysis of 80 patients with lumbar disk degeneration treated by spinal fusion; discussion of the clinical material, and investigations of the pressure conditions in the lumbar intervertebral disks with regard to the effect of lumbar osteosynthesis.

In chapter 2 the author quotes the work of Friberg and Hirsch (1949). One hundred spines were removed from postmortem specimens; these were radiographed in flexion and extension. It was found that pronounced degenerative changes were present without any radiographic manifestations. In cases where instability was present there were also conspicuous changes in the disk. When the roentgenogram revealed reduced disk space, sclerosis or osteophytes, the corresponding disk was severely damaged. The author believes that this investigation gives strong support to the opinion that lumbago and sciatica have their origin in degenerative changes in the intervertebral disks.

Among 6,948 male employees of the Stockholm Tramway Company, 408 were given diagnoses of lumbago and/or sciatica. It is thought probable that some connection exists between this high frequency of lumbago and/or sciatica and the nature of the work of the traffic staff. Of 185 men and 245 women treated in the hospital, 21 men and 18 women were operated on. The results of surgical treatment have been better than those obtained from conservative therapy, despite the fact that the patients treated surgically were those with the more serious conditions. The book consists of the compilation of a great deal of statistical data and should make a good reference volume for anyone interested in the subject of low back pain.

The Pathogenesis and Pathology of Viral Diseases. Edited by John G. Kidd. Symposium held at the New York Academy of Medicine, December 14 and 15, 1948. Symposia of the Section on Microbiology, The New York Academy of Medicine, Number 3. Cloth. $5. Pp. 235, with illustrations. Columbia University Press, 2960 Broadway, New York 27, 1950.

Since the organization, in 1947, of the Section on Microbiology of the New York Academy of Medicine, important contributions to modern medical literature have been made by that group. This, the third volume of a series of published symposia on bacterial, fungus and viral diseases, represents 14 papers presented on this subject. Many phases of the study of viruses are included. Dissemination of viruses, their relation to tissue cells, the lesions produced by several viruses and the pathological changes inherent therein are among the subjects presented. The bibliography supplied for each chapter enhances the value of the volume, and the book is recommended to those interested in the advances in virology.

Light Therapy. By Richard Kovacs, M.D., Professor of Physical Medicine, New York Polyclinic Medical School and Hospital, New York. Publication Number 57, American Lecture Series, A Monograph in American Lectures in Physical Medicine, edited by W. A. Selle, Ph.D., Professor of Biophysics, University of California School of Medicine, Los Angeles. Cloth. $2.25. Pp. 112, with 28 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This brief and attractive book is a semipopular sketch of the uses to which ultraviolet, visible and infra-red radiation have been put at various times in the treatment of human disease. It contains much scientific information and illustrates some recent forms of physical therapeutic apparatus, but it also contains some misleading statements, together with numerous small errors that are likely to puzzle students. It can be recommended, however, to physiatrists interested in having a recent summary of knowledge and attitudes in this particular field.

Textbook of Abnormal Psychology. By Roy M. Dorcus, Professor of Psychology, University of California, Los Angeles, and G. Wilson Shaffer, Dean of the University, Johns Hopkins University, Baltimore, Maryland. Fourth edition. Cloth. $5. Pp. 717, with illustrations. The Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1950.

This highly successful, now standard, textbook of abnormal psychology has reached this edition with little fundamental revision. The book is not truly a textbook of abnormal psychology, for it contains much of basic neurology and physiology. It attempts an encyclopedic, unbiased attitude toward every field and endeavor which can be considered significant to the understanding of abnormal psychology. As a result, it has a certain attractiveness for the academic teacher and lacks the emphasis on living human beings with problems of adjustment that the serious student of abnormal psychology needs. It has an extensive glossary, detailed author and subject indexes and 12,000 bibliographic references.

QUERIES AND MINOR NOTES

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

FAMILIAL DEAFNESS

To the Editor:—Two healthy young persons of good family background have three children. The older daughter, aged 8, and the only son, aged 2, are congenitally deaf. The daughter also has frequent bouts of pyuria with fever. No anomaly of the urinary tract has been found, despite adequate studies in two excellent institutions. The younger daughter, aged 6, has an interventricular septal defect. The younger brother of the father of these children and the younger sister of the mother have decided to marry. I was asked about the chance of the younger pair's having children with congenital defects. It is my guess that the father and mother of my patients each has a recessive gene which, combined, leads to defective offspring. Could you tell me where I could find an authoritative opinion?

Hedwig Koenig, M.D., New York.

ANSWER.—Making the reasonable assumption that the deafness in this family is due to a recessive gene and that only one of the grandparents carried this recessive gene, one may state that the chance of the father's brother carrying the gene is one half. The chance of the mother's sister carrying the gene is also one half. The chance that both of these people carry the same recessive gene is therefore one quarter. If this chance is fulfilled, they may have some deaf children. The chance of any child's being deaf, if both parents carry the recessive gene, is one quarter. This makes the over-all probability of one sixteenth that a child of this marriage would be deaf.

TRICHOMONAS URETHRITIS

To the Editor:—What is the best treatment for a man, aged 51, with urethritis due to Trichomonas? An associated prostatitis exists, and a subsequent smear after vigorous prostatic massage revealed many pus cells and some Staphylococcus albus and diphtheroids. Sensitivity tests show penicillin to be the drug of choice, and I have given him 1.5 cc. of procaine penicillin in oil (300,000 units per cubic centimeter) daily for six days. He no longer has urethral discharge. However, arthralgia developed, and he complains of pains in the wrists, one ankle and one heel on awakening. These pains disappear by noon. Of what significance are these pains? Would aureomycin help? How soon may prostatic massages be resumed, and how often?

M.D., Illinois.

ANSWER.—In most cases, chronic or subacute urethritis, whether due to Trichomonas or other agents, is secondary to prostatitis or urethral stricture and may be expected to disappear spontaneously after proper treatment of the underlying condition. The development of arthralgia raises the question of Reiter's syndrome, in which case dihydrostreptomycin would be the drug of choice. Locally, prostatic massage should be continued weekly until the prostatic fluid shows only 5 to 8 white cells per high power field on a thin wet smear. Heat in the form of rectal irrigations or hot sitz baths are beneficial as well as general hygienic measures. Before therapy is concluded, the possibility of a large-caliber stricture should be eliminated by calibration of the urethra with a bulbous bougie.

AIR HUNGER

To the Editor:—A patient complains of air hunger, more pronounced in the evening or when she becomes tired. No other symptoms are present. She has borderline anemia, for which I administer mety-carsiron (a proprietary mixture of iron, copper and sodium cacodylates) and thiamine hydrochloride intravenously daily, with no effect. The only way she can gain relief from air hunger is by yawning. What could be the cause of this, and what treatment do you suggest?

Forrest C. Lawrence, M.D., Bartlesville, Okla.

ANSWER.—It is assumed that the important causes of air hunger have been ruled out, for example, heart failure, nephritis, diabetes, pulmonary fibrosis, emphysema, tumor, congenital anomalies of the heart or lungs and other causes of anoxia. The patient should be examined for "borderline" anemia; if anemia is present, proper therapy, depending on the type of anemia found, should be instituted. If, as stated, no other symptoms, and presumably no abnormal signs, are present and if one yawn immediately stops the air hunger, the condition perhaps represents a neurosis. If air hunger recurs after the few normal respiratory cycles, another underlying cause must be sought, some of which are named above. If the patient is neurotic, reassurance and deep breathing exercises may be helpful. The underlying cause of the neurosis must be sought and corrected.

TREATMENT OF MULTIPLE SCLEROSIS

To the Editor:—An article on multiple sclerosis appears in the December 1950 issue of *McCall's* magazine. I have been asked many times about this article and the advisability of Dr. Hinton Jonez' treatment at St. Joseph's Hospital, Tacoma, Wash. Any information you may give will be appreciated.

Frank J. Burian, M.D., Williamson, W. Va.

ANSWER.—The course of treatment given by Dr. Hinton D. Jonez is purely for the relief of symptoms of multiple sclerosis. It seems to combine the work done by other investigators with emphasis on possible allergic factors. The histamine therapy was tried some years ago at the Mayo Clinic, with equivocal results. Curare (and its derivatives) was carefully investigated by Schlesinger and others and is still in use by some as a muscle relaxant. Allergy studies have likewise been carried out elsewhere. Physical therapy and rehabilitative methods are being utilized in several places. Dr. Jonez is using a combination of these methods in the widest concentrated attack on the symptoms of this disease.

The National Multiple Sclerosis Society (270 Park Avenue, New York 17) is convinced of Dr. Jonez' interest in the problem and of his integrity as a physician and scientist. In the absence of any more specific approach either to symptomatic relief of multiple sclerosis or to a cure, Dr. Jonez' program has much to recommend it and is well within the realm of ethical medicine. Neither he nor the society considers that his method cures multiple sclerosis. Further intensive investigation is under way.

Before a patient plans traveling long distances for treatment, inquiry should first be made as to whether such treatment is available through his own physician or medical center in his own or in nearby communities. Dr. Jonez has expressed his willingness to explain his methods to other physicians and is planning to publish his observations. The National Multiple Sclerosis Society strongly recommends that a patient ascertain whether he can be accommodated at Dr. Jonez' clinic before going to Tacoma.

CERVICAL SYMPATHETIC BLOCK AFTER CEREBRAL THROMBOSIS

To the Editor:—Kindly comment on the article in the November 11 issue of the *Saturday Evening Post*, on "something new about strokes."

Eugene F. Wahl, M.D., Edwardsville, Ill.

To the Editor:—A woman, 46 years old, with hypertension had a cerebral hemorrhage in 1945, at which time she lost her speech and was paralyzed on her right side. The patient's right arm now is semiparalyzed, and her right ankle is weak and turned inward. She wears a brace on this leg. The patient read an article in the Nov. 11, 1950, *Saturday Evening Post* that mentions a French surgeon, René Leriche, who is performing stellate ganglion block with procaine solution. It was stated that no danger is involved in this treatment. The patient wishes to try this therapy and has asked my opinion. Please inform me whether there have been any valuable results?

Max M. Krauss, M.D., New York.

ANSWER.—A cervical sympathetic block (not a stellate block, which is hazardous in the hands of the average physician) is an easy procedure frequently used in vascular clinics. When this procedure is done within the first six to 12 hours after the occurrence of cerebral embolism or cerebral thrombosis, an acceleration of spontaneous recovery takes place. Obviously, the area of infarction itself cannot be influenced, but the marginal edema and vascular stasis can, since sudden improvement after procaine block of the cervical sympathetics does take place in over 50 per cent of the cases. All workers in this field would agree that cerebral hemorrhage should be excluded from this treatment. If the author had emphasized in his article in the *Saturday Evening Post* that every patient with apoplexy should have a spinal puncture on admission to the hospital, he would have made a large contribution to the welfare of these patients. It is a fact, however, that outside of neurological or neurosurgical clinics spinal puncture is not often carried out. Surgical intervention is definitely and urgently indicated in subarachnoid hemorrhage, and intracerebral hemorrhage can be evacuated in well selected cases, but nerve block cannot mitigate hemorrhage—it may even increase it.

Cervical sympathetic block following apoplexy, in which hemorrhage can be reasonably excluded, is a valuable emergency procedure (J. A. M. A. 136:659-664 [1948]). The article in the *Saturday Evening Post*, however, emphasizes the effect of repeated blocks or sympathectomies in advanced cases and here relies heavily on a California report (*Arch. Surg.* 61:286 [Aug.] 1950). This part of the problem is still in the experimental stage. The mechanism of relief in the advanced cases is unclear, and the value of the procedure is highly debatable.

TREATMENT OF OSTEOPOROSIS

To the Editor:—**May I have the latest information on the treatment of osteoporosis in a lower leg after healed fracture with impaired circulation to the foot? The patient is a woman of 40 years. Her blood calcium is 9.5 mg. per 100 cc., and she has a basal metabolic rate of —8 per cent. She takes 2 grains (0.12 Gm.) of thyroid a day.**

H. M. F. Behneman, M.D., Palm Springs, Calif.

ANSWER.—Localized osteoporosis usually is due not to any metabolic or endocrine disturbance but rather to a localized disease process, oftentimes with traumatic causation, which results in disturbed circulation to the part and in partial or complete immobilization. Fracture is a common cause, especially if prolonged immobilization in a cast and non-weight-bearing are required. From the meager information supplied, it is assumed that these circumstances reasonably obtained in the case in question and that the fracture was recent. The normal blood calcium substantiates the absence of metabolic fault; the apparent hypothyroid state (controlled by thyroid medication), is not pertinent to the localized osteoporosis. Since the bone decalcification is due to a local lesion, treatment should be essentially local. Measures to normalize circulation should be emphasized. Use of massage, exercises, contrast baths and passive vascular exercises (Buerger's exercises) should be of value. The most important single factor is the establishment of as nearly normal weight bearing on this extremity as is possible, as soon as possible. This will serve more than anything else to normalize function and metabolism in the affected bone.

Usually measures of benefit for generalized decalcification are of little or no help (high protein diet with androgen or estrogen therapy). Recovery of normal or nearly normal bone usually results if the management can be successfully instituted, although recalcification is notoriously slow.

Rh NEGATIVE WIFE, Rh POSITIVE HUSBAND

To the Editor:—**I would appreciate advice on the following case: The wife's blood is group O, Rh negative, and the husband's, group O, homozygous, Rh positive (type Rh_1Rh_1 [CDe/cDe]). The only child is group O, Rh positive (type Rh_2 [cDE/cde]). The second pregnancy proceeded normally, antibodies developing in low titer at the twenty-sixth week. The titer gradually rose until the thirty-fifth week, when it was 1: 512 in serum albumin. No blocking antibodies ever developed. At the thirty-sixth week the titer doubled, but labor was not induced. A few days later the child died in utero. The patient has been told that in all future pregnancies the child may die in utero or, if born alive, will require exsanguination-transfusion. If this is correct, can anything be done to prevent an antibody response? Is hapten of any use? Can it be obtained? Does the administration of vitamin K and progesterone throughout pregnancy prevent the passage of antibodies through the placenta? If treatment will not prevent fetal damage, should the patient be allowed to become pregnant again?**

V. H. Gordon, M.B., Ch.B., South Africa.

ANSWER.—The husband is Rh positive and almost surely homozygous, while the wife is Rh negative and strongly sensitized to the Rh factor. Under such conditions, every child will almost surely be Rh positive and therefore severely erythroblastotic; in fact, it is very likely that every fetus will be stillborn. Only in exceptional cases will a viable erythroblastotic baby be born that can be saved by multiple transfusions of Rh-negative blood or by exchange transfusion (East, E. N., and Mair, C. M.: Intensive Immunization of an Already Sensitized Rh-negative Woman: Birth of a Mildly Diseased Baby, *J. Lab. & Clin. Med.* 34: 983 [July] 1949). With regard to the reference cited, it should be pointed out that the title of the article is misleading, because the clinical course indicates that the baby was severely affected and was lucky to have survived. It was only after nine transfusions of a total of 560 cc. of blood over a period of 10 weeks that this baby finally recovered.

The couple may decide that, despite the odds against success, they wish to try again. A stillbirth would be practically inevitable, but by inducing labor four to six weeks before term one might succeed in obtaining a viable baby. It would be far wiser to practice contraception; should the wife become pregnant, a therapeutic abortion would be indicated. Therapeutic abortion is justifiable, because such a pregnancy is almost certain to terminate with a hydropic stillbirth, and such stillbirths are associated with increased danger to the mother from toxemia and postpartum hemorrhage. If the patient becomes pregnant a second time, sterilization of the patient or her husband should be broached. If the couple is very anxious to have another child, they could adopt one, except that, in general, adoption agencies tend to give priority to childless couples. If the temperament of the couple is suitable, artificial insemination from an Rh-negative donor may be resorted to; this has never failed. However, one must bear in mind the moral and legal implications of the procedure (McCurdy, R. N. C.: The Rhesus Danger—Its Medical, Moral, and Legal Aspects, London, Wm. Heinemann Medical Books, Ltd., 1950). At least one court has found Rh sensitization grounds for divorce, maintaining that husband and wife are not sterile and could have children with other spouses of compatible Rh type.

Once a patient has become sensitized to the Rh factor, nothing can be done to eliminate or reduce the Rh antibody titer. The so-called Rh hapten has proved inert both in vitro and in vivo and is not recommended for treatment (Unger, L. J.: Studies on Preventive and Curative Treatments for Rh Sensitization, *Am. J. Obst. & Gynec.* 58: 1186 [Dec.] 1949). Univalent Rh antibodies which are responsible for the disease, readily pass through the placenta, and vitamin K, progesterone and other drugs cannot prevent the placental transfer of antibodies (Wiener, A. S.: Rh Factor in Immunological Reactions, *Ann. Allergy* 6: 293 [May-June] 1948).

PROCAINE PENICILLIN AND SULFONAMIDES

To the Editor:—**There have been reports that the procaine base part of the procaine penicillin preparations has an inhibitive action on sulfonamides, that the procaine part of a 1 cc. dose was enough to make concomitant sulfonamide therapy impossible. Is this correct? Can penicillin be expected to be stable for any length of time in a 3 per cent aqueous solution of sodium bicarbonate?**

R. J. Kent, M.D., Savannah, N. Y.

ANSWER.—Procaine penicillin preparations contain about 120 to 125 mg. of procaine to each 300,000 units of penicillin per milliliter. Woods has demonstrated that a small quantity of paraaminobenzoic acid interferes with the effects of sulfanilamide and sulfapyridine and that procaine had a similar but delayed effect. This delay is probably due to the time involved in the enzymatic hydrolysis of procaine to paraaminobenzoic acid. In vitro studies show that paraaminobenzoic acid must be present only in a ratio of 1: 2,000 to inhibit sulfanilamide but a concentration of 1: 70 is necessary to inhibit sulfathiazole and the more soluble sulfonamides, such as sulfadiazine and sulfacetamide.

Studies in man indicate that after an injection of 1,500,000 units of aqueous procaine penicillin, appreciable levels of free procaine or paraaminobenzoic acid could not be demonstrated in the blood stream of over half the subjects tested, but evidence of an acetylated derivative of paraaminobenzoic acid was found. In 30 per cent of those tested, concentrations of less than 0.1 mg. of paraaminobenzoic acid per milliliter of serum were found, and 20 per cent showed insignificant traces of procaine.

Both the procaine and the acetylated paraaminobenzoic acid may be disregarded for inhibitory effect since the former is present in too low a concentration and the latter is relatively inactive. However, in the doses administered 30 per cent of the subjects tested did have blood concentrations of paraaminobenzoic acid sufficient to theoretically inhibit the action of sulfanilamide and sulfapyridine, but not sulfathiazole, sulfadiazine and other more soluble sulfonamides.

The procaine from procaine penicillin is released slowly, which probably accounts for the failure to attain a significant blood level of procaine. In addition, the paraaminobenzoic acid formed is excreted with relative rapidity. Therefore, the low total amount of procaine in procaine penicillin preparations, as well as its slow rate of release into the blood stream, and the rapid rate of excretion of paraaminobenzoic acid would make negligible any inhibitory effect of procaine penicillin preparations on the more soluble sulfonamides.

The stability of solutions of unbuffered sodium penicillin G kept at room temperature is rather short; within two days more than half of the original potency is lost. When kept at 10 C. and when a 0.1 M citrate buffering system was used, little appreciable loss was noted after 40 days, with but 20 per cent loss of potency after 80 days. Sodium bicarbonate would have slight preservative action, since the products of penicillin decomposition are acid, but the stability would be only slightly longer than for unbuffered solutions.

CHEMICALS USED IN TANNING LEATHER AND IN SHOE POLISH

To the Editor:—What kind of chemicals are used in tanning leather for tan and black shoes, and what chemicals are used in the material for polishing both types of shoes? Is is possible to absorb any of this material? What effect would one experience?

Lester V. Stallsmith, Ph.D., Wilkes-Barre, Pa.

ANSWER.—Leather intended for black and for tan shoes undergoes the same early treatment. Such leather may represent the full thickness of some skins, such as calf skin, or a split of thicker hides, such as from cows. Preparation prior to tanning involves many steps and many chemicals. Among other chemicals, are lime, sulfites, mineral and organic acids, amines and enzymes. Tanning may be accomplished with a variety of agents, including chrome, aldehydes, quinones and vegetable and synthetic tannins. Tanning is followed by oiling and softening and at times splitting and artificial graining. In due course some leathers are dyed, otherwise colored or enameled. Paraphenylendiamine used to be extensively employed but has largely disappeared. Earlier, too, common solvents included the dangerous benzene methanol and nitrobenzene. Now various other alcohols, esters and naphthas are used. The choice of coloring agents is wide, but aniline dyes in black and brown are mostly used. Despite the protean steps and agents involved, good leather as made into shoes is without significant danger to the prospective wearer. Rarely on a basis of allergy skin affections may arise.

The formula for black shoe polishes is typical: 5 parts montan wax, 15 parts ceresin wax, 5 parts beeswax, 2 parts oil-soluble nigrosin and 50 parts turpentine. For tan polishes the same formula but without the coloring agent may be used, or low quantities of brown dyes may be introduced. Substantially no danger derives from their use. There is enormous variation in polish and dye constituents, and some brands may contain harmful agents.

SLIGHT PTOSIS OF UPPER EYELID

To the Editor:—A 14 year old girl has had slight blepharoptosis of the left eye since the age of 7. Some days it is slight; some days it is more noticeable. The girl is otherwise normal. I wish to know the possibility of a nonsurgical treatment, particularly the action of neostigmine, and the relation of this disorder to generalized myopathies.

Manuel Beseain-Santander, M.D., Santiago, Chile.

ANSWER.—Since there is no other abnormality and ptosis has been present for seven years with some variation in degree, the two most important diagnoses to consider are myasthenia gravis and progressive nuclear ophthalmoplegia. To differentiate between the two, a diagnostic injection of 1.5 mg. of neostigmine combined with 0.6 mg. of atropine should be given. A positive response of disappearance of the ptosis will favor a diagnosis of myasthenia gravis. The ptosis of progressive nuclear ophthalmoplegia will not respond to neostigmine. In this disease, ptosis often is the first symptom; it may be unilateral or bilateral and may be present for a number of years before the extraocular muscles are affected. The disease is progressive and the extraocular muscles eventually will become affected. Also, strong hereditary factors are involved, so that a careful search of the family history should be made. Progressive nuclear ophthalmoplegia may be seen in certain types of progressive muscular atrophy, but rarely with amyotrophic lateral sclerosis. It is observed also with tumors or vascular lesions of the brain stem, in multiple sclerosis, tabes, dementia paralytica, intoxication from lead, botulism, Wernicke's disease, and as a result of injuries. So far as nonsurgical treatment is concerned, the use of the "crutch" glass is probably the best device available. Neostigmine would be of value only if a diagnosis of myasthenia gravis is made.

NEW GROWTHS IN BREASTS OF INFANTS

To the Editor:—A 9 month girl has a firm, movable, discoid, nontender, subcutaneous mass, about 2.5 cm. in diameter, in the left breast. The center of the mass corresponds to the nipple but does not appear to be attached to the skin. Moderate prominence of the breast is obvious. The mass has been present since the child was 1 month old and appears to have grown slightly in recent weeks. I have observed this child almost daily, and she appears to be in perfect health. I would appreciate a brief discussion of the differential diagnosis.

M.D., Canal Zone.

ANSWER.—New growths of the infant breast are extremely uncommon. They are uniformly benign. Among those that have been observed are dermoid cyst, hemangioma and a rare intraductal papilloma with bleeding from the nipple. The single case of intraductal papilloma presented a soft, centrally located swelling. Pressure about the nipple produced a bloody discharge from the nipple.

These must be clinically differentiated from the common mastitis neonatorum which may appear immediately or shortly after birth and persist for a variable time. Occasionally this may be unilateral and persist for several months. As a rule, a flat, diffuse and slightly nodular swelling is palpable beneath the nipple and areola. No treatment is necessary, since the condition subsides spontaneously.

A cyst is palpable as a well defined and rounded mass located about the margin of the areola. Hemangiomas are more prone to appear in the parenchyma of the breast. They occur as soft, compressible and diffuse swellings. When deeply located and cavernous in type, there is only a faint, if any, bluish discoloration of the overlying skin.

LATENT SYPHILIS OR FALSE POSITIVE REACTION?

To the Editor:—A 42 year old woman had a 2 plus Kahn reaction of the blood in 1942. In September 1949 the state health department reported the following reactions: blood Kline, Wassermann and Kolmer positive and blood Kahn doubtful. A private laboratory reported the Kahn blood reaction positive at the same time, and another private laboratory gave the following results of blood tests: quantitative 10 units and Kahn, Kline, Mazzini and Pangborn reactions strongly positive. The spinal fluid in 1949 was clear and colorless, with 1 white blood cell, 1 lymphocyte, negative Pandy reaction, total proteins 100 mg., negative Kahn reaction, gum mastic 000000 and negative Kolmer reaction. Results of Kahn and Kline tests of the blood were positive, quantitative 4 units, Kolmer negative and Kline cardiolipin positive. A blood Kahn reaction of the blood was reported positive in July 1950, with 4 quantitative units. This patient denied having had venereal disease or having been treated for it. Results of her physical examination are normal. She had the usual childhood diseases and scarlet fever, asthma and eczema. In 1938 her tonsils and adenoids were removed; in 1942 she underwent a right nephrectomy and in 1949 an appendectomy. Does this patient have syphilis? Does the protein level indicate neurosyphilis? What treatment would you suggest?

M.D., Ohio.

ANSWER.—This patient has either late latent syphilis or a biologic false positive serologic reaction for syphilis. One cannot say which diagnosis is correct on the basis of standard serologic tests for syphilis. The abnormally high spinal fluid protein suggests central nervous system disease. It is unlikely that this disease is syphilis because of the negative spinal fluid complement fixation. This disease, whatever it may be, might be responsible for the false positive blood reaction. If, on repeated examination, the spinal fluid protein is still abnormally high and no cause can be found, then antisyphilitic treatment may be given. Treatment is given only because a definite diagnosis cannot be made and to give the patient maximum protection for the future in case she does have syphilis. A total of 6,000,000 units of procaine penicillin in oil with 2 per cent aluminum monostearate, given in 10 doses over a period of two to three weeks, should be adequate therapy.

RETARDED GROWTH

To the Editor:—A 7 year old girl, weight 30 pounds (14 Kg.), height 37¼ inches (95 cm.), has a normal history, with the usual childhood diseases. She has a poor appetite, desiring primarily carbohydrates, and takes about two hours to finish her meal. Her intelligence quotient is above average. Physical examination discloses no abnormalities. The parents are 5 feet 7 inches (170 cm.) and three other children are normal in height and weight. This girl has grown 1 inch (2.5 cm.) and has gained about 4 pounds (2 Kg.) in the past year. The parents are apprehensive concerning the weight and growth of this girl.

C. L. Qualls, M.D., Beaver Dam, Wis.

ANSWER.—Heredity and environment apparently do not play a role in this instance, as the parents and other siblings are normal. Although the physical examination disclosed no abnormalities, certain congenital defects may be discovered only by intensive studies. Congenital cardiovascular genitourinary and gastrointestinal hidden defects may stunt growth and development. Consequently roentgenograms of the chest, electrocardiograms, blood chemistry determinations (nonprotein nitrogen, sugar, calcium, cholesterol), gastrointestinal roentgenograms with barium, careful stool and urine examinations (including cultures) and intravenous pyelography might be revealing. Endocrine disturbances, especially of the pituitary, thyroid and ovary, may cause retarded growth. Endocrinological study would include basal metabolism, roentgen studies of epiphyseal center development and possibly estimations of 17-ketosteroids in the urine. The appropriate treatment would depend on the particular glandular disturbance, i. e., a hypothyroid child will grow rapidly when thyroid is administered. Testosterone, 10 mg. daily by mouth over a two month trial period, will often stimulate growth when no other cause can be found. Testosterone therapy should be stopped when any evidence of stimulating sex development is noticed.

Anorexia nervosa and other psychogenic disturbances might so interfere with the appetite and intake of food as to stunt growth. Information as to whether this child has been a "behavior problem" and whether she has other emotional dif-

ficulties and maladjustments, besides the slow eating habits and poor appetite, would aid in diagnosis. In certain circumstances psychiatric therapy might help. Fatigue may cause this lack of appetite. Shortening school hours, more sleep, moderation in athletics and periods of relaxation before meals might help. Any anemia should be corrected. Recently vitamin B_{12} therapy (10 micrograms or more daily) has caused certain undernourished children to gain and grow rapidly when no other cause could be found. Also occasionally 5 units of insulin given a half-hour before meals will greatly stimulate the appetite.

HEREDITARY ASPECTS OF CELIAC DISEASE

To the Editor:—A four year old girl has been given a diagnosis of celiac disease. She has been to one of the larger medical centers, is being treated and is progressing nicely at this time. The parents (26 and 30 years of age) have been told that they should not have any more children because of the possibility of celiac disease in other offspring. What is the probability?

M.D., Texas.

Answer.—Several more or less clearly defined entities have been described in the group composing the celiac syndrome; these are classified by Brennermann as follows: (1) classic celiac disease or idiopathic steatorrhea, (2) starch intolerance, (3) congenital pancreatic insufficiency, (4) chronic mechanical obstruction of the pathways of digestion and absorption, (5) cases presenting or suggesting the celiac syndrome but which do not fall into the above group. Although any one of these may occur in more than one member of a family, only cystic fibrosis of the pancreas (congenital pancreatic deficiency) is a congenital and familial disease, occurring in approximately one fourth of the siblings in affected families. The disease in the described case probably falls in the group of classic celiac diseases. There would not be any contraindication for the parents to have more children unless a diagnosis of cystic fibrosis of the pancreas had been made. Perhaps it would be well to consult further the clinic making the diagnosis.

IDIOPATHIC SCOLIOSIS IN A YOUNG GIRL

To the Editor:—What is the treatment for so-called idiopathic scoliosis of moderate degree involving the dorsal region in a young healthy girl of 11? Is physical therapy ever successful in such cases? Is surgical fusion the only accepted method?

M.D., Florida.

Answer.—The accepted treatment for idiopathic scoliosis in a girl of 11 years depends on several factors. Foremost of these are (1) severity, (2) rapidity and degree of progression, (3) location and extent of the curves and (4) degree of compensation. In most cases careful observation over a period of months, and in some cases a few years, is necessary to decide whether or not fusion is indicated. The role of physical therapy in the treatment of scoliosis is questionable, but, if exercises as prescribed by a competent orthepedist or physiatrist are carried out during the period of observation, no harm would be expected from this treatment. If it is decided that sooner or later fusion is necessary, the question of correction and compensation is complicated as is the decision as to the extent to which the spine should be fused. Most orthopedic surgeons have had special training in the management of scoliosis, and it is suggested that the child in question be placed under the care and observation of one having had such training.

HOMOSEXUALITY IS NOT HEREDITARY

To the Editor:—A 19 year old boy, whom I have known since he was 3, recently told me that he is homosexual and wants help desperately. His father is a personal friend of mine. I can say the same of the young man's grandparents and all his near relatives. No sign of this abnormality is in the family to my knowledge. I would like your advice.

M.D., Massachusetts.

Answer.—The inquirer intimates that homosexuality is hereditary. This is not correct. It is a developmental arrest in the evolution of a personality. In varying degrees the subject remains psychologically immature in his attachment to and relation with other persons. There are many degrees of homosexuality. It is a normal phase in personality development in early adolescence. It remains a basic feature of every person's life, but he passes through the phase when he is more interested in members of his own rather than of the opposite sex. It becomes pathological in the adult who maintains such a relation for his sexual outlets. Help is available and can be effective for the homosexual person who desires it. The treatment, however, is entirely psychiatric and is nearly always a prolonged undertaking, lasting, even with intensive treatment, many months or even years. For those persons who do not want to change their makeup and even those who are not highly motivated in seeking help, treatment is practically useless.

PERSONALITY CLASSIFICATION

To the Editor:—About 1920 two men in Vienna categorized people into, I believe, sympatheticotonics and parasympatheticotonics. Jung divided people into extroverts and introverts. Now there seems to be a tendency to divide them into "adrenocorticotropics" and "anterior pituitaries." Is there a relation between these three divisions? Are the sympatheticotonics usually extroverted and usually adrenocorticotropics and vice versa?

Paul C. Craig, M.D., Reading, Pa.

Answer.—Many attempts have been made to classify people according to some assumed functional or anatomic differences. None of these, however, has a scientifically sound basis. Although a few persons show certain characteristics suggestive of an overactive sympathetic or parasympathetic nervous system, such a classification is not universally applicable. This is also true regarding introverts and extroverts, since many persons would belong to neither of these groups. There is certainly no evidence that there is a relation between the degree of introversion or extroversion, sympathetic or parasympathetic activity and adrenocorticotropic or anterior pituitary activity.

SCHIZOPHRENIA

To the Editor:—My 36 year old nephew has had schizophrenia since he was 18 years of age. Radical lobotomy, in January 1950, improved his condition substantially. He still shows signs of psychosis, like confabulation, obscene language and tremendous stubbornness. Is there some form of treatment (hormones) that might bring further improvement?

M.D., Connecticut.

Answer.—From the history as given, it seems unlikely that any appreciable improvement could be effected by hormone or other therapy in this case. In any case of schizophrenia of 18 years' duration, treatment by any of the methods now employed will do little. In the case of some males, diethylstilbestrol has been used in order to make the patient more docile and manageable. However, no great dependence can be placed on this treatment, though theoretically it may have some validity if disturbed conduct seems to be associated with uncontrolled sexual impulses.

NEPHROTIC SYNDROME

To the Editor:—For the past several years I have suffered from the so-called "nephrotic syndrome," with massive edema, urine containing albumin (4 plus), reversed albumin-globulin ratio, hypoproteinemia, blood findings (except for albumin and globulin) within normal limits. Can you inform me as to any of the latest treatments for this condition? I have tried the sodium lactate-potassium acetate treatment and the ion exchange treatment. Is there anything else that may help me? What about ACTH or cortisone?

M.D., New York.

Answer.—Pituitary adrenocorticotropic hormone (ACTH) and cortisone have been reported to produce diuresis, loss of edema and general improvement in children with the nephrotic syndrome. This treatment is still highly experimental and should be carried out under expert supervision. Expensive as they are, these hormones are more economical to use than human salt-free serum albumin.

DILATATION OF PUPIL

To the Editor:—Which drug, and in what concentration, is most advisable for enlarging the pupil sufficiently to permit routine eye ground examination by a general practitioner and allow the pupil to return to its normal size and mechanism in the shortest period of time?

R. J. Kent, M.D., Savannah, N. Y.

Answer.—Four per cent cocaine hydrochloride, instilled three times at five minute intervals, is probably the simplest procedure for securing maximal dilatation for fundus examination and prompt subsequent narrowing of the pupil and restoration of accommodation. Dilation of the pupil does, of course, precipitate an increase of tension in an eye predisposed to glaucoma, and the tension should be determined with a tonometer beforehand.

ERUPTION OF DECIDUOUS TEETH

To the Editor:—Is there evidence that the deciduous teeth erupt because of pressure of hyperemic tissue beneath their roots? Could this hyperemia account for the rhinorrhea that often accompanies teething? If not, what other mechanism can account for the eruption of teeth?

M.D., Louisiana.

Answer.—The exact mechanism of eruption of deciduous teeth is still a controversial problem. Periapical hyperemia probably plays a role in eruption. However, this hyperemia probably is not related to the rhinorrhea and other symptoms that sometimes occur at the same time as teething. A comprehensive review of the theories of eruption was published in the *American Journal of Orthodontia and Oral Surgery* (27:552 [Oct.] 1941).